

## PATENT ASSIGNMENT AGREEMENT

This PATENT ASSIGNMENT AGREEMENT is made from NORTEL NETWORKS CORPORATION, a corporation duly incorporated under the laws of Canada, having its executive offices at 8200 Dixie Road, Suite 100, Brampton, Ontario L6T 5P6 Canada, and the Selling Subsidiaries (collectively, the "Assigning Parties") to BOOKHAM TECHNOLOGY PLC, a public limited company incorporated under the laws of England and Wales having its executive offices at 90 Milton Park, Abingdon, Oxfordshire OX14, 4RY United Kingdom ("Assignee"). Capitalized terms used herein but not defined herein shall have the meanings set forth in the Acquisition Agreement (as defined below).

WHEREAS, Nortel Networks Corporation and the Assignee have entered into an Acquisition Agreement (the "Acquisition Agreement") dated as of October 7, 2002 (*as amended through the date hereof*), for the sale by the Assigning Parties to the Assignee of certain assets and an assumption by the Assignee of certain liabilities of the Assigning Parties; and

WHEREAS, in connection with the Acquisition Agreement, the Assigning Parties desire to assign to the Assignee, and the Assignee desires to acquire, all of the Assigning Parties' right, title and interest in and to the patents, patent applications and unfiled invention disclosures set forth in Schedule A hereto (collectively, the "Patents").

NOW THEREFORE, for good and valuable consideration, including the execution of the Acquisition Agreement by Assignee, the receipt and sufficiency of which are hereby acknowledged, the Assigning Parties and Assignee are entering into this Patent Assignment Agreement (the "Assignment Agreement") and hereby agree as follows:

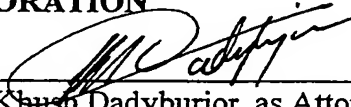
1. Assignment of Patents. The Assigning Parties hereby sell, assign, set over and transfer to the Assignee all of the Assigning Parties' respective right, title and interest in and to the said Patents and any and all continuations and divisions of said Patents and continuations-in-part based in whole or in part upon said Patents, and in, to and under any and all Letters Patent which may be granted on or as a result thereof, and any re-issue, re-examination or extension of said Letters Patent, and in and to any and all priority rights, convention rights and other benefits accruing or to accrue with respect to the filing of applications for patents or the issuance of patents in all countries in respect of the said Patents; the same to be held and enjoyed by the Assignee, its successors, assigns, nominees or legal representative, to the full end of the term or terms for which said Letters Patent respectively may be granted, reissued or extended, as fully and entirely as the same would have been held and enjoyed by the Assigning Parties had this assignment, sale and transfer not been made. The Assigning Parties hereby authorize and request the Commissioner of Patents of the United States of America and any official of any country or countries foreign to the United States of America whose duty it is to issue patents on applications as aforesaid, to issue to the Assignee, any and all Letters Patent for the said Patents, which may be issued and

granted on or as a result of the application aforesaid, in accordance with the terms of this Assignment.

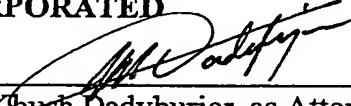
2. Further Assurances. At Assignee's expense, the Assigning Parties agree to perform all further acts and execute and deliver all further documents and/or instruments which may be reasonably necessary to carry out the provisions of this Assignment Agreement, including, without limitation, cooperating fully with Assignee to perfect the transfer of the Patents hereunder and, if appropriate, to assure that the Patents are properly recorded at any appropriate administrative agency, including but not limited to, the United States Patent and Trademark Office.
3. Governing Law. This Assignment Agreement shall be governed by and enforced in accordance with the laws of the State of New York, without giving effect to any conflicts of law principles.
4. Successors and Assigns. This Assignment Agreement shall be binding on, and shall inure to the benefit of, the parties hereto and their respective successors and assigns.

IN WITNESS WHEREOF, the Assigning Parties and the Assignee have caused this Assignment Agreement to be executed by their authorized officers on this 8<sup>th</sup> day of November, 2002.


**NORTEL NETWORKS  
CORPORATION**

By:   
Name: Khush Dadyburjor, as Attorney-in-Fact

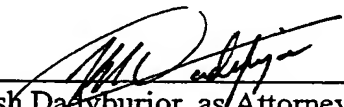
**NORTEL NETWORKS  
INCORPORATED**

By:   
Name: Khush Dadyburjor, as Attorney-in-Fact


**NORTEL NETWORKS LIMITED**

By:   
Name: Khush Dadyburjor, as Attorney-in-Fact

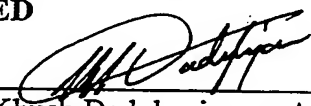
**NORTEL NETWORKS PROPERTIES  
LIMITED**

By:   
Name: Khush Dadyburjor, as Attorney-in-Fact


**NORTEL NETWORKS  
TECHNOLOGY CORPORATION**

By:   
Name: Khush Dadyburjor, as Attorney-in-  
Fact


**NORTEL NETWORKS (ASIA)  
LIMITED**

By:   
Name: Khush Dadyburjor, as Attorney-in-  
Fact

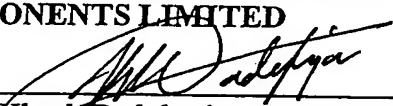
**NORTEL NETWORKS OPTICAL  
COMPONENTS (SWITZERLAND)  
GmbH**

By:   
Name: Khush Dadyburjor, as Attorney-in-  
Fact

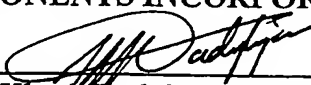
**NORTEL NETWORKS (U.K.)  
LIMITED**

By:   
Name: Khush Dadyburjor, as Attorney-in-  
Fact


**NORTEL NETWORKS OPTICAL  
COMPONENTS LIMITED**

By:   
Name: Khush Dadyburjor, as Attorney-in-  
Fact


**NORTEL NETWORKS OPTICAL  
COMPONENTS INCORPORATED**

By:   
Name: Khush Dadyburjor, as Attorney-in-  
Fact


**NORTEL NETWORKS HPOCS  
INCORPORATED**

By:   
Name: Khush Dadyburjor, as Attorney-in-  
Fact

**NORTEL NETWORKS PHOTONICS  
PTY LIMITED**

By:   
Name: Khush Dadyburjor, as Attorney-in-  
Fact

**NORTEL NETWORKS SHANNON  
LIMITED**

By:   
Name: Khush Dadyburjor, as Attorney-in-  
Fact

On this 11 day of November, 2002, before me appeared Chuck Burgin, the person who signed this instrument, who acknowledged that he/she signed it as a free act on his/her own behalf or on behalf of each of the Assigning Parties with authority to do so.

State of Ontario (private)

)

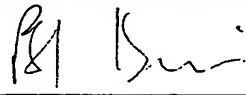
County of Pul (again)

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ss.

*[Signature]*

**BOOKHAM TECHNOLOGY PLC**

By: 

Name:

Title:

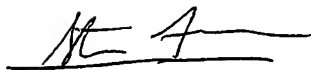
*[Signature Page to Patent Assignment Agreement]*

On this 8 day of November, 2002, before me appeared PHILIP S.J. DAVIS, the person who signed this instrument, who acknowledged that he/she signed it as a free act on his/her own behalf or on behalf of Bookham Technology plc with authority to do so.

State of NEW YORK )

ss.

County of NEW YORK )



STEVEN FOUNDOS  
Notary Public, State Of New York  
No.01FO6076651  
Qualified In Nassau County  
Certificate Filed In New York County  
Commission Expires July 1, 2006



## SCHEDULE A

### Transferred Patents

| Disclosure Number | Filed Country | Filed Date | Patent Number | Filed Countries in Family                         | Title  |
|-------------------|---------------|------------|---------------|---|--|
| 10289RO           | US            | 19-Apr-99  | 6222200       | Canada, United States                             | PHOTODETECTOR WITH SPECTRALLY EXTENDED RESPONSIVITY                      |
| 10412RO           | US            | 17-Oct-00  | Pending       | United States                                     | EXTERNAL CAVITY LASER USING ANGLE-TUNED FILTER AND METHOD OF MAKING SAME |
| 10413ID           | US            | 30-Jun-99  | Pending       | United States                                     | FIBRE TERMINATION COMPOUND GRADED INDEX LENSES                           |
| 10485RO           | US            | 1-Dec-00   | Pending       | United States                                     | ELECTROCHROMIC OPTICAL ATTENUATOR  |
| 10509RO           | US            | 23-Dec-99  | 6287401       | Canada, United States                             | ALIGNMENT METHOD FOR SEMICONDUCTOR OPTICAL DEVICES UPON CARRIERS         |
| 11006ID           | US            | 2-Feb-00   | Pending       | United States                                     | MODULATOR ASSEMBLIES   |
| 11010ID           | US            | 28-Feb-00  | Pending       | Canada, European Patent Convention, United States | OPTICAL AMPLIFIER STAGE  |
| 11920ID           | US            | 21-Apr-00  | Pending       | United States                                     | PUMPED OPTICAL AMPLIFICATION DEVICE                                      |
| 11945ID           | US            | 18-May-00  | Pending       | United States                                     | A RAMAN FIBRE LASER  |
| 11954ID           | US            | 18-May-00  | Pending       | United States                                     | A RAMAN FIBRE LASER  |
| 12242RO           | US            | 11-Dec-00  | Pending       | United States                                     | EPITAXIALLY GROWN AVALANCHE PHOTODIODE                                   |
| 12339ID           | US            | 1-Sep-00   | Pending       | United States                                     | OPTICAL FIBER DEVICE   |
| 12349RO           | US            | 12-Oct-00  | Pending       | Canada, United States                             | COMPACT CHIP LABELING USING STEPPER TECHNOLOGY                           |
| 12526RO           | US            | 12-Sep-00  | Pending       | United States                                     | APPARATUS FOR GRIPPING CERAMIC SUBSTRATES                                |
| 12615ID           | US            | 29-Sep-00  | Pending       | United States                                     | PACKAGING ATMOSPHERE AND METHOD OF PACKAGING A MEMS DEVICE               |
| 12634RO           | US            | 20-Dec-00  | Pending       | United States                                     | STRUCTURE AND METHOD FOR DOPING OF III-V COMPOUNDS                       |
| 12665RO           | US            | 22-Sep-00  | Pending       | United States                                     | PRINT QUALITY TEST STRUCTURE FOR LITHOGRAPHIC DEVICE MANUFACTURING       |
| 12686ID           | US            | 27-Oct-00  | Pending       | United States                                     | GLASS FIBER FIXATIVE AND FIXING PROCESS                                  |

| Disclosure Number | Filed Country | Filed Date | Patent Number | Filed Countries in Family                         | Title   |
|-------------------|---------------|------------|---------------|---|---|
| 12715RO           | US            | 22-Sep-00  | Pending       | United States                                     | METHODS FOR MAKING PATTERNS IN RADIATION SENSITIVE POLYMERS                                 |
| 12800AU           | US            | 30-Aug-95  | 5930441       | United States                                     | SPLIT-BEAM FOURIER FILTER   |
| 12841ID           | US            | 14-Jul-00  | Pending       | United States                                     | INTEGRATED OPTICAL TRANSMITTER  |
| 12847RO           | US            | 14-Dec-01  | Pending       | Canada, United States                             | CONFINEMENT LAYER OF BURIED HETEROSTRUCTURE SEMICONDUCTOR LASER                             |
| 12849ID           | US            | 9-Nov-00   | Pending       | Patent Cooperation Treaty, United States          | OPTICAL AMPLIFIER METHOD AND APPARATUS  |
| 12948ID           | US            | 6-Dec-00   | Pending       | Canada, United States                             | OPTICAL AMPLIFIER, OPTICAL AMPLIFIER HYBRID ASSEMBLY AND METHOD OF MANUFACTURE              |
| 13063CK           | US            | 27-Sep-96  | 6041071       | United States                                     | ELECTRO-OPTICALLY TUNABLE EXTERNAL CAVITY MIRROR FOR A NARROW LINEWIDTH SEMICONDUCTOR LASER |
| 13144CK           | US            | 31-Aug-99  | Pending       | Canada, United States                             | LASER WITH SETTABLE WAVELENGTHS   |
| 13199CK           | US            | 10-Aug-00  | Pending       | Canada, European Patent Convention, United States | SINGLE ETALON OPTICAL WAVELENGTH REFERENCE DEVICE   |
| 13201CK           | US            | 10-Aug-00  | Pending       | Canada, European Patent Convention, United States | DOUBLE ETALON OPTICAL WAVELENGTH REFERENCE DEVICE   |
| 13391RO           | US            | 16-Nov-01  | Pending       | United States                                     | MONOLITHICALLY INTEGRATED OPTICALLY-PUMPED EDGE-EMITTING SEMICONDUCTOR LASER                |
| 13417RO           | US            | 29-Dec-00  | Pending       | United States                                     | METHOD OF ETCHING PATTERNS INTO EPITAXIAL MATERIAL  |
| 13444CK           | US            | 17-May-01  | Pending       | Patent Cooperation Treaty, United States          | MICRORELATION FOR DWDM TELECOMMUNICATIONS APPLICATIONS                                      |
| 13494ID           | US            | 29-Mar-01  | Pending       | Canada, European Patent Convention, United States | METHOD AND APPARATUS FOR MINIMIZING GAIN DEVIATION IN OPTICAL FIBRE AMPLIFIERS              |
| 13495ID           | US            | 4-Oct-00   | 6377717       | United States                                     | OPTICAL MODULATORS  |
| 13502RO           | US            | 14-Dec-00  | Pending       | United States                                     | OPTICAL FIBER TERMINATION   |

| Disclosure Number | Filed Country | Filed Date | Patent Number | Filed Countries in Family   | Title  |
|-------------------|---------------|------------|---------------|---|--|
| 13524RO           | US            | 19-Jul-01  | Pending       | United States   | A METHOD AND SYSTEM FOR FABRICATING SEMICONDUCTOR LASERS                               |
| 13544RO           | US            | 10-May-02  | Pending       | United States   | SEMICONDUCTOR LASER  |
| 13584RO           | US            | 13-Nov-00  | Pending       | Canada, European Patent Convention, United States                     | ELECTRODE TERMINATION FOR REDUCED LOCAL HEATING IN AN OPTICAL DEVICE                   |
| 13591ID           | GB            | 18-Dec-01  | Pending       | Great Britain, Patent Cooperation Treaty                              | OPTICAL MODULATORS   |
| 13614ID           | US            | 26-Nov-01  | Pending       | United States, Patent Cooperation Treaty                              | OPTICAL PULSE GENERATION   |
| 13721RO           | US            | 20-Sep-02  | Pending       | United States   | AN NON-DESTRUCTIVE AND FAST WAY TO DETECT DIFFUSION DEPTH AND UNIFORMITY CROSS A WAFER |
| 13813RO           | US            | 20-May-02  | Pending       | United States   | MONOLITHICALLY INTEGRATED HIGH POWER LASER OPTICAL DEVICE                              |
| 13816RO           | Unfiled       | Unfiled    | Unfiled       | Unfiled   | APPARATUS FOR MONITORING THE OUTPUT POWER OF DIODE LASERS AND MODULATORS               |
| 14224ID           | US            | 21-Dec-01  | Pending       | United States   | ISOLATION OF MICROWAVE TRANSMISSION LINES  |
| 14429ID           | US            | 6-Dec-01   | Pending       | United States   | OPTICAL BEAM SAMPLING MONITOR  |
| 14404RO           | US            | 20-Dec-01  | Pending       | United States   | HYBRID CONFINEMENT LAYERS OF BURIED HETEROSTRUCTURE SEMICONDUCTOR LASER                |
| 14433JD           | US            | 20-Apr-98  | 6204560       | Canada, European Patent Convention, Japan, Korea South, United States | TITANIUM NITRIDE DIFFUSION BARRIER FOR USE IN NON-SILICON TECHNOLOGIES AND METHOD      |
| 14434JD           | US            | 1-Sep-00   | Pending       | European Patent Convention, United States                             | STABILIZED LASER SOURCE  |
| 14435JD           | US            | 25-Oct-00  | Pending       | Canada, European Patent Convention, United States                     | SUPPORTING STRUCTURE FOR FIBER FIXING AND SUBMICRON FINE ALIGNMENT                     |
| 14480RO           | Unfiled       | Unfiled    | Unfiled       | Unfiled   | GAIN COUPLED DISTRIBUTED FEEDBACK LASER USING SELF-ASSEMBLED QUANTUM DOTS              |

| Disclosure Number | Filed Country | Filed Date  | Patent Number | Filed Countries in Family                                | Title   |
|-------------------|---------------|-------------|---------------|--|---|
| 14549JD           | US            | 9-May-02    | Pending       | Canada, European Patent Convention, Japan, United States | HIGH POWER SEMICONDUCTOR LASER DIODE  |
| 14551JD           | US            | 19-Dec-01   | Pending       | United States  | HIGH POWER LASER CARRIER  |
| 14552JD           | US            | 6-Nov-01    | Pending       | United States  | ANTI-REFLECTION COATINGS FOR SEMICONDUCTOR LASERS   |
| 14592ID           | US            | 19-Dec-01   | Pending       | United States  | GIMBALLED LENS MOUNT AND ALIGNMENT ASSEMBLY FOR A SENSITIVE OPTICAL ALIGNMENT               |
| 14676RO           | US            | 26-Dec-01   | Pending       | United States  | ENHANCED LINK OPERATION OF DIRECTLY MODULATED LASERS USING GAIN-COUPLED GRATINGS            |
| 14681ID           | US            | 21-Dec-01   | Pending       | United States  | THERMAL COMPENSATION AND ALIGNMENT FOR OPTICAL DEVICES                                      |
| 14716RO           | US            | 12-Feb-02   | Pending       | United States  | WAVEGUIDE MODE STRIPPER FOR INTEGRATED OPTICAL COMPONENTS                                   |
| 14777ID           | US            | 18-Dec-2001 | Pending       | United States  | OPTICAL AMPLIFIERS  |
| 14794RO           | US            | 30-Sep-02   | Pending       | United States  | METHOD AND APPARATUS FOR FLOATING GRATINGS IN DFB (DISTRIBUTED FEEDBACK) LASERS             |
| 14854RO           | Unfiled       | Unfiled     | Unfiled       | Unfiled  | A METHOD FOR MINIMIZING CROSSTALK DUE TO LASER WAVELENGTH VARIATIONS WITH NON-IDEAL FILTERS |
| 14864RO           | US            | 8-Jul-02    | Pending       | United States  | CURRENT TUNED MACH-ZEHNDER OPTICAL ATTENUATOR   |
| 14942RO           | US            | 5-Apr-02    | Pending       | United States  | RE-CIRCULATING OPTICAL PULSE GENERATOR  |
| 15004RO           | US            | 18-Mar-02   | Pending       | United States  | MICRO-MIRRORS WITH VARIABLE FOCAL LENGTH, AND OPTICAL COMPONENTS COMPRISING MICRO-MIRRORS   |
| 15093RO           | US            | 26-Sep-02   | Pending       | United States  | MULTIPLE-CONTACT SEMICONDUCTOR OPTICAL AMPLIFIERS   |
| 15095RO           | US            | 29-Mar-02   | Pending       | United States  | FREQUENCY IDENTIFICATION WITH FREQUENCY LOCKER  |

| Disclosure Number | Filed Country | Filed Date | Patent Number | Filed Countries in Family | Title  |
|-------------------|---------------|------------|---------------|---------------------------|--|
| 15113CK           | US            | 7-Jun-02   | Pending       | United States             | WAVELENGTH STABILIZED OPTICAL DEVICE   |
| 15116JD           | US            | 24-Apr-02  | Pending       | United States             | HIGH POWER SEMICONDUCTOR LASER DIODE AND METHOD FOR MAKING SUCH A DIODE  |
| 15117JD           | Unfiled       | Unfiled    | Unfiled       | Unfiled                   | PUMP LASER DIODE WITH IMPROVED WAVELENGTH STABILITY  |
| 15138ID           | US            | 3-Jun-02   | Pending       | United States             | AN IMPROVED METHOD FOR TERMINATING AN OPTICAL WAVEGUIDE INTO AN OPTICAL COMPONENT                                |
| 15142RO           | US            | 31-Jan-02  | Pending       | United States             | FLEXIBLE POLYMER WAVEGUIDES FOR OPTICAL WIRE BONDS   |
| 15150RO           | US            | 27-Sep-02  | Pending       | United States             | METHOD FOR INTEGRATING OPTICAL DEVICES IN A SINGLE EPITAXIA GROWTH STEP  |
| 15164RO           | US            | 2-Oct-02   | Pending       | United States             | A DOPANT-INDUCED REAL REFRACTIVE INDEX-GUIDED SELF-ALIGNED LASER STRUCTURE WITH INTEGRAL CURRENT BLOCKING LAYER. |
| 15181ID           | US            | 26-Jun-02  | Pending       | United States             | LASER TRANSMITTER  |
| 15193RO           | US            | 14-May-02  | Pending       | United States             | OPTIMIZED PERFORMANCE OF INGAASP/INP COMPACT ON-CHIP POLARIZATION CONVERTER                                      |
| 15320RO           | US            | 15-Oct-02  | Pending       | United States             | ELECTRO-OPTIC MODULATOR WITH CONTINUOUSLY ADJUSTABLE CHIRP   |
| 15338RO           | Unfiled       | Unfiled    | Unfiled       | Unfiled                   | HIGH POWER DISTRIBUTED FEEDBACK LASER  |
| 15386JD           | US            | 16-Sep-02  | Pending       | United States             | RIDGE WAVEGUIDE LASER DIODE WITH COMPLEX INDEX GUIDING LAYER   |
| 15389JD           | Unfiled       | Unfiled    | Unfiled       | Unfiled                   | LASER STABILIZATION USING VERY HIGH RELATIVE FEEDBACK  |
| 15390RO           | US            | 16-Aug-02  | Pending       | United States             | ON-CHIP POLARIZATION SPLITTER/COMBINER DEVICE  |
| 15399JD           | US            | 17-Oct-02  | Pending       | United States             | A GUIDED SELF-ALIGNED LASER STRUCTURE WITH INTEGRAL CURRENT BLOCKING LAYER                                       |

| Disclosure Number | Filed Country | Filed Date | Patent Number | Filed Countries in Family                            | Title  |
|-------------------|---------------|------------|---------------|--|--|
| HQ0054            | US            | 19-Feb-99  | 6141370       | Canada, United States                                | SUPERIMPOSED GRATING WDM TUNABLE LASERS  |
| ID0032            | US            | 6-Oct-94   | 5534442       | United States  | OPTO ELECTRONIC COMPONENTS   |
| ID0079            | US            | 19-Jul-93  | 5393707       | Great Britain, United States                         | SEMICONDUCTOR - SLICE CLEAVING   |
| ID0094            | US            | 17-Nov-95  | 5668823       | France, Germany, Great Britain, Japan, United States | HYBRID OPTIC SOLUTION  |
| ID0134            | US            | 16-Feb-94  | 5419804       | France, Germany, Great Britain, Japan, United States | SEMICONDUCTOR ETCHING PROCESS  |
| ID0137            | US            | 26-Jul-95  | 5574811       | Great Britain, United States                         | PROVIDING OPTICAL COUPLING BETWEEN OPTICAL COMPONENTS                                      |
| ID0170            | US            | 24-Feb-94  | 5365534       | United States  | INJECTION LASER AND PHOTODIODE ASSEMBLY  |
| ID0193            | US            | 13-Feb-95  | 5568728       | Great Britain, United States                         | FILAMENT COOLER  |
| ID0199            | US            | 9-Sep-94   | 5542011       | United States  | CO & COUNTER-PUMPED OPTICAL AMPLIFIER  |
| ID0206            | US            | 9-Sep-94   | 5530580       | France, Germany, Great Britain, Japan, United States | ELECTRO ABSORPTION OPTICAL MODULATORS  |
| ID0216            | US            | 29-Jul-94  | 5522000       | France, Germany, Great Britain, Japan, United States | PROVIDING OPTICAL COUPLING WITH SINGLE CRYSTAL SUBSTRATE MOUNTED ELECTRO-OPTIC TRANSDUCERS |
| ID0237            | US            | 22-Mar-94  | 5502741       | United States  | DIRECT AMPLITUDE MODULATION OF LASERS  |
| ID0261            | US            | 7-Mar-96   | 5933707       | France, Germany, Great Britain, Japan, United States | IMPROVEMENTS IN CRYSTAL SUBSTRATE PROCESSING   |
| ID0287            | US            | 3-Aug-95   | 6275321       | France, Germany, Great Britain, United States        | POLARISATION-INSENSITIVE OPTICAL MODULATORS  |

| Disclosure Number | Filed Country | Filed Date | Patent Number | Filed Countries in Family                                   | Title   |
|-------------------|---------------|------------|---------------|---|---|
| ID0295            | US            | 12-Dec-95  | 5570444       | France, Germany, Great Britain, Italy, United States        | OPTICALLY COUPLING OPTICAL FIBRES TO INJECTION LASERS |
| ID0311            | US            | 4-Dec-96   | 5872649       | France, Germany, Great Britain, Italy, United States        | OPTICAL AMPLIFIER                                     |
| ID0384            | US            | 19-Jul-96  | 5664043       | Great Britain, United States                                | HERMETIC OPTICAL FIBRE FEED-THROUGH                   |
| ID0426            | US            | 30-Apr-97  | 5828689       | Canada, European Patent Convention, Japan, United States    | ETALON ARRANGEMENT                                    |
| ID0431            | US            | 19-Jun-98  | 6058125       | France, Germany, Great Britain, Italy, Japan, United States | SEMICONDUCTOR LASERS                                  |
| ID0467            | US            | 5-Feb-97   | 5985086       | France, Germany, Great Britain, Italy, Japan, United States | CONTROLLED DISPENSE OF GLUE ONTO A SILICON V-GROOVE   |
| ID0519            | US            | 1-Aug-97   | 6188118       | Canada, European Patent Convention, Japan, United States    | SEMICONDUCTOR PHOTODETECTOR PACKAGING                 |
| ID0651            | US            | 30-May-97  | 5901164       | Canada, European Patent Convention, Japan, United States    | DIRECT AMPLITUDE MODULATION OF LASERS                 |
| ID0687            | US            | 4-Dec-97   | 6124956       | United States   | OPTICAL TRANSMITTER OUTPUT MONITORING TAP             |
| ID0691            | US            | 5-May-98   | 6075800       | United States   | BONDING RIDGE STRUCTURE LASER DIODES TO SUBSTRATES    |

| Disclosure Number | Filed Country | Filed Date | Patent Number | Filed Countries in Family                                   | Title  |
|-------------------|---------------|------------|---------------|---|--|
| ID0764            | US            | 16-Aug-99  | 6351589       | United States   | A REMOVABLY COATED OPTICAL FIBRE               |
| ID0803            | US            | 24-Dec-97  | 5956437       | Canada, European Patent Convention, Japan, United States    | ELECTRICALLY CONTROLLABLE OPTICAL ATTENUATOR   |
| ID0908            | US            | 30-Apr-98  | Pending       | United States   | SEMICONDUCTOR OPTO ELECTRONIC DEVICE PACKAGING |
| ID1107            | US            | 29-Mar-99  | 6240221       | Canada, European Patent Convention, United States           | INTEGRATED OPTICAL MACH ZEHNDER STRUCTURES     |
| ID8512            | US            | 15-Jul-83  | 4615031       | Great Britain, United States                                | INJECTION LASER PACKAGES                       |
| ID8850            | US            | 22-Jul-86  | 4720684       | Canada, United States                                       | OPTICAL AMPLIFIERS                             |
| ID8852            | US            | 21-May-85  | 4608276       | Canada, United States                                       | MANUFACTURING OPTICAL FIBRE                    |
| ID8960            | US            | 11-Dec-86  | 4735648       | United States   | OPTICAL FIBRE MANUFACTURE                      |
| ID9003            | US            | 2-Oct-85   | 4631078       | Canada, Germany, Great Britain, Japan, Spain, United States | COATING OPTICAL FIBRES                         |
| ID9186            | US            | 17-Jan-89  | 4949352       | Great Britain, United States                                | LASER MANUFACTURE                              |
| ID9209            | US            | 1-May-86   | 4748307       | United States   | TUBE FURNACE                                   |
| ID9312            | US            | 14-Aug-86  | 4793840       | Great Britain, United States                                | OPTICAL FIBRE MANUFACTURE                      |



| Disclosure Number | Filed Country | Filed Date | Patent Number | Filed Countries in Family  | Title   |
|-------------------|---------------|------------|---------------|--|---|
| ID9315            | US            | 31-Dec-90  | RE34,516      | France, Germany, Great Britain, New Zealand, United States         | OPTICAL FIBRE CABLE HAVING SLOTTED CORE                                 |
| ID9379            | US            | 24-Nov-86  | 4772086       | Great Britain, United States                                       | OPTICAL FIBRE INTEGRATED OPTICAL DEVICE COUPLER                         |
| ID9495            | US            | 31-Mar-87  | 4760580       | Germany, Japan, United States                                      | LASER ARRAY   |
| ID9552            | US            | 10-Feb-88  | 4830459       | France, Germany, Great Britain, United States                      | OPTICAL FIBRE CABLES  |
| ID9604            | US            | 9-Aug-88   | 4988159       | France, Germany, Great Britain, Netherlands, Sweden, United States | FIBRE TAILED OPTO-ELECTRONIC TRANSDUCER                                 |
| ID9617            | US            | 1-Sep-88   | 4937638       | United States  | EDGE EMITTING LIGHT EMISSIVE DIODE                                      |
| ID9661            | GB            | 12-Oct-88  | 2213957       | Great Britain  | WAVEGUIDE TO OPTO-ELECTRONIC TRANSDUCER                                 |
| ID9715            | US            | 31-May-90  | 5083090       | France, Germany, Great Britain, Japan, United States               | CONTACTLESS MEASUREMENT OF THE ELECTRICAL RESISTANCE PER UNIT LENGTH... |

| Disclosure Number | Filed Country | Filed Date | Patent Number       | Filed Countries in Family  | Title  |
|-------------------|---------------|------------|---------------------|--|--|
| ID9716            | US            | 31-May-90  | 5062687             | France, Germany, Great Britain, Japan, United States                     | CARB ON COATING OF OPTICAL FIBRES                |
| ID9731            | GB            | 4-Aug-88   | 2221570             | Great Britain  | BONDING A SEMICONDUCTOR TO A SUBSTRATE           |
| ID9742            | GB            | 30-Sep-88  | 2223324             | Great Britain  | OPTICAL FILTERS                                  |
| ID9750            | US            | 10-Sep-90  | 5029981             | France, Germany, Great Britain, Italy, Japan, Netherlands, United States | DIFFRACTION GRATING                              |
| ID9752            | GB            | 4-Oct-88   | 2223509             | Great Britain  | VAPOUR PHASE PROCESSING                          |
| ID9763            | US            | 11-Dec-90  | 5115444             | France, Germany, Great Britain, United States                            | MULTICHANNEL CAVITY LASER                        |
| ID9774            | GB            | 3-Feb-89   | 2227854             | Great Britain  | INTEGRATED OPTICS ASYMMETRIC Y-COUPLER           |
| ID9806            | US            | 27-Jun-90  | 5082380             | United States  | OPTICAL FIBRE CABLE                              |
| ID9837            | US            | 12-Oct-90  | 5050960             | United States  | AERIAL OPTICAL FIBRE CABLE                       |
| ID9856            | GB            | 2-Nov-89   | 2237654             | Great Britain  | SEMICONDUCTOR OPTICAL SOURCE                     |
| ID9870            | US            | 17-Sep-90  | 5056096             | France, Germany, Great Britain, Japan, United States                     | RING LASER                                       |
| MO0068            | US            | 8-Jun-89   | 5035916 and 4934774 | Canada, France, Germany, Great Britain, United                           | OPTICAL WAVEGUIDE AND METHOD FOR ITS MANUFACTURE |

| Disclosure Number | Filed Country | Filed Date | Patent Number | Filed Countries in Family                                | Title  |
|-------------------|---------------|------------|---------------|--|--|
|                   |               |            |               | States   |  |
| MO0166            | US            | 20-Sep-96  | 5703980       | United States  | A METHOD FOR LOW LOSS INSERTION OF AN OPTICAL SIGNAL FROM A OPTICAL FIBER TO A WAVEGUIDE INTEGRATED ONTO A SEMICONDUCTOR WAFER |
| MO0167            | US            | 10-Jul-96  | 5793913       | Canada, European Patent Convention, Japan, United States | A METHOD FOR THE HYBRID INTEGRATION OF DISCRETE ELEMENTS ON A SEMICONDUCTOR SUBSTRATE  |
| MO0167            | US            | 15-May-98  | 6158901       | Canada, European Patent Convention, Japan, United States | METHOD FOR HYBRID INTEGRATION OF DISCRETE ELEMENTS ON SEMICONDUCTOR SUBSTRATE  |
| MO0167            | US            | 1-Jun-00   | 6391214       | Canada, European Patent Convention, Japan, United States | METHOD FOR HYBRID INTEGRATION OF DISCRETE ELEMENTS ON SEMICONDUCTOR SUBSTRATE  |
| RE1009            | US            | 28-Nov-89  | 4950046       | Canada, United States                                    | FIBER OPTIC COUPLER  |
| RE1037            | US            | 28-Apr-86  | 4730171       | Canada, United States                                    | OPTICAL SIGNAL MODULATORS  |
| RO1624            | US            | 11-Feb-81  | 4695125       | United States  | HERMETIC OPTICAL ATTENUATOR  |
| RO1807            | US            | 3-Dec-82   | 4493287       | Canada, United States                                    | DIFFUSION EQUIPMENT  |
| RO1809            | US            | 9-Dec-82   | 4530099       | United States  | A PLANAR NARROW-STRIP LASER WITH IMPROVED CHARGE CARRIER CONFINEMENT   |
| RO1882            | US            | 27-Feb-84  | 4574730       | Canada, United States                                    | MELT DISPENSING LIQUID PHASE EPITAXY BOAT  |
| RO1903            | US            | 23-Feb-84  | 4489477       | Canada, United States                                    | METHOD FOR SCREENING LASER DIODES  |
| RO1944            | US            | 22-Oct-84  | 4661962       | Canada, United States                                    | PHASED LINEAR LASER ARRAY  |
| RO1961            | US            | 9-Sep-88   | 4889830       | Canada, United States                                    | ZINC DIFFUSION INTO INDIUM PHOSPHIDE   |
| RO1987            | US            | 21-Nov-84  | 4660207       | Canada, United States                                    | DOUBLE HETEROSTRUCTURE SURFACE EMITTING LASER STRUCTURE  |
| RO1994            | US            | 14-Feb-85  | 4675877       | Canada, United States                                    | A SURFACE EMITTING LASER   |

| Disclosure Number | Filed Country | Filed Date | Patent Number | Filed Countries in Family                            | Title   |
|-------------------|---------------|------------|---------------|--|---|
| RO2005            | US            | 14-Feb-85  | 4675876       | Canada, United States                                | A BRAGG DISTRIBUTED FEEDBACK SURFACE EMITTING LASER                                       |
| RO2268            | US            | 11-Apr-88  | 4859628       | Canada, United States                                | AN INTERRUPTED LIQUID PHASE EPITAXY TECHNIQUE   |
| RO2314            | US            | 31-Mar-88  | 4847665       | United States  | MONOLITHIC INTEGRATION OF OPTOELECTRONIC AND ELECTRONIC                                   |
| RO2349            | US            | 2-Jun-88   | 4849373       | Canada, United States                                | GROWTH OF SEMI-INSULATING INP BY LIQUID PHASE EPITAXY                                     |
| RO2461            | US            | 22-Jun-89  | 4969712       | United States  | OPTOELECTRONIC APPARATUS AND METHOD FOR ITS FABRICATION                                   |
| RO2468            | US            | 27-Jul-89  | 4953006       | Canada, United States                                | PACKAGING METHOD AND PACKAGE FOR EDGE COUPLED OPTOELECTRONIC DEVICE                       |
| RO2564            | US            | 11-May-90  | 4989214       | France, Germany, Great Britain, United States        | LASER DIODE STRUCTURE   |
| RO2579            | US            | 14-Sep-90  | 5050953       | Great Britain, United States                         | MULTICHANNEL FIBER OPTIC TRANSMITTER RECEIVER   |
| RO2714            | US            | 23-Dec-92  | 5350923       | United States  | APPARATUS FOR USE WITH ANALYTICAL MEASURING INSTRUMENTS                                   |
| RO2785            | US            | 15-Jul-93  | 5363457       | France, Germany, Great Britain, Japan, United States | OPTICAL PHASE MODULATING DEVICES AND METHODS FOR THEIR OPERATION                          |
| RO2788            | US            | 9-Sep-93   | 5345459       | United States  | METHOD OF REDUCING THE THERMALLY INDUCED SHIFT IN THE EMISSION WAVELENGTH OF LASER DIODES |
| RO2799            | US            | 16-Dec-93  | 5452318       | United States  | GAIN COUPLED DFB LASER WITH INDEX COUPLING COMPENSATION                                   |

| Disclosure Number | Filed Country | Filed Date | Patent Number | Filed Countries in Family                                | Title  |
|-------------------|---------------|------------|---------------|--|--|
| RO2809            | US            | 29-Nov-93  | 5586207       | United States  | METHODS AND ASSEMBLIES FOR PACKAGING ELECTRONIC DEVICES AND FOR COUPLING OPTICAL FIBERS TO THE PACKAGED DEVICES              |
| RO2817            | US            | 29-Nov-93  | 5448581       | United States  | CIRCULAR GRATING LASERS  |
| RO2875            | US            | 25-May-95  | 5526076       | United States  | CHIRP CONTROL OF A MACH ZEHNDER OPTICAL MODULATOR USING NONEQUAL POWER SPLITTING   |
| RO2879            | US            | 10-May-94  | 5483547       | United States  | SEMICONDUCTOR LASER STRUCTURE FOR IMPROVED STABILITY OF THE THRESHOLD CURRENT WITH RESPECT TO CHANGES IN AMBIENT TEMPERATURE |
| RO2956            | US            | 8-Mar-96   | 5694504       | Canada, Great Britain, Japan, United States              | SEMICONDUCTOR MODULATOR WITH A 2-2 SHIFT   |
| RO2969            | US            | 25-May-95  | 5567659       | United States  | METHOD OF ETCHING PATTERNS IN III-V MATERIAL WITH ACCURATE DEPTH CONTROL   |
| RO2974            | US            | 30-Mar-95  | 5536085       | United States  | MULTI WAVELENGTH GAIN COUPLED DISTRIBUTED FEEDBACK LASER ARRAY WITH FINE TUNABILITY  |
| RO2999            | US            | 3-Jul-96   | 5799119       | Canada, European Patent Convention, Japan, United States | COUPLING OF STRONGLY AND WEAKLY GUIDING WAVEGUIDES FOR COMPACT INTEGRATED MACH ZEHNDER MODULATORS                            |
| RO3007            | US            | 11-Oct-96  | 6028875       | United States  | BURIED HETEROSTRUCTURE LASER WITH QUATERNARY CURRENT BLOCKING G LAYER  |
| RO3015            | US            | 24-Nov-97  | 5960014       | Great Britain, Japan, United States                      | THIN FILM RESISTOR FOR OPTOELECTRONIC INTEGRATED CIRCUITS  |
| RO3066            | US            | 9-Jun-98   | 6151347       | United States  | LASER DIODE AND METHOD OF FABRICATION THEREOF  |

| Disclosure Number | Filed Country | Filed Date | Patent Number | Filed Countries in Family                                    | Title  |
|-------------------|---------------|------------|---------------|--|--|
| RO3090            | US            | 7-Nov-96   | 5778113       | Canada, European Patent Convention, United States            | CONFIGURABLE CHIRP MACH-ZEHNDER OPTICAL MODULATOR  |
| RO3090            | US            | 7-Nov-96   | 5991471       | United States  | CONFIGURABLE CHIRP MACH-ZEHNDER OPTICAL MODULATOR  |
| RO3092            | US            | 25-Jul-96  | 5777793       | United States  | POLARIZATION INSENSITIVE MULTILAYER PLANAR REFLECTION FILTERS WITH NEAR IDEAL SPECTRAL RESPONSE            |
| RO3139            | US            | 11-Jul-96  | 5825792       | Canada, France, Germany, Great Britain, Japan, United States | WAVELENGTH MONITORING AND CONTROL ASSEMBLY FOR WDM OPTICAL TRANSMISSION SYSTEMS                            |
| RO3478            | US            | 18-Sep-97  | 5936994       | European Patent Convention, Japan, United States             | TWO SECTION COMPLEX COUPLED DISTRIBUTED FEEDBACK SEMICONDUCTOR LASER WITH ENHANCED WAVELENGTH TUNING RANGE |
| RO3479            | US            | 16-Oct-97  | 6026110       | United States  | DISTRIBUTED FEEDBACK SEMICONDUCTOR LASER WITH GAIN MODULATION  |
| RO3610            | US            | 24-Dec-97  | 6104739       | European Patent Convention, Japan, United States             | SERIES OF STRONGLY COUPLED DFB LASERS  |
| RO3746            | US            | 19-Dec-97  | 5869398       | United States  | ETCHING OF INDIUM PHOSPHIDE MATERIALS FOR MICROELECTRONIC FABRICATION                                      |
| RO3920            | US            | 10-Nov-99  | Pending       | Canada, European Patent Convention, Japan                    | A GAIN COUPLED DISTRIBUTED FEEDBACK SEMICONDUCTOR LASER  |
| RO4144            | US            | 11-Dec-98  | 6201824       | United States  | STRONGLY COMPLEX COUPLED DFB LASERS SERIES   |
| RO4324            | US            | 15-Dec-98  | Pending       | United States  | GENERATION OF SHORT OPTICAL PULSES USING STRONGLY COMPLEX COUPLED DFB LASERS                               |
| RO4416            | US            | 2-Sep-99   | 6246826       | United States  | VARIABLE OPTICAL ATTENUATOR WITH PROFILED BLADE  |

| Disclosure Number | Filed Country | Filed Date | Patent Number | Filed Countries in Family                                | Title  |
|-------------------|---------------|------------|---------------|--|--|
| RO4504            | US            | 20-Jul-00  | Pending       | Canada, European Patent Convention, Japan, United States | COMPOUND CAVITY REFLECTION MODULATION LASER SYSTEM   |
| 15502RO           | Unfiled       | Unfiled    | Unfiled       | Unfiled  | A P-SUBSTRATE SELF-ALIGNED LASER STRUCTURE WITH IRON DOPED CURRENT BLOCKING LAYERS   |
| 15507RO           | Unfiled       | Unfiled    | Unfiled       | Unfiled  | A MAGNETO-OPTIC NONRECIPROCAL WAVEGUIDE TE/TM MODE CONVERTER IN SEMICONDUCTING MATERIALS   |
| 15558RO           | Unfiled       | Unfiled    | Unfiled       | Unfiled  | MANUFACTURE OF A GRATING TEMPLATE AND ITS TRANSFER INTO AL (IN, GA)AS MATERIAL USING IN-SITU ETCHING AND REGROWTH INSIDE A GROWTH REACTOR. |
| 15592RO           | Unfiled       | Unfiled    | Unfiled       | Unfiled  | ETCHING OF INDEX- OR GAIN-COUPLED GRATINGS INTO INGAASP MATERIAL USING IN-SITU ETCHING IN A GROWTH REACTOR                                 |
| 15649JD           | Unfiled       | Unfiled    | Unfiled       | Unfiled  | LASER STRUCTURE WITH LARGE OPTICAL SUPERLATTICE WAVEGUIDE  |
| 15655RO           | Unfiled       | Unfiled    | Unfiled       | Unfiled  | HIGH TEMPERATURE OPERATION LASER DIODES  |
| 15656RO           | Unfiled       | Unfiled    | Unfiled       | Unfiled  | FABRICATION OF A BURIED HETEROSTRUCTURE LASER WITH AN INGAASP ACTIVE LAYER USING IN-SITU ETCHING IN A GROWTH REACTOR                       |
| 15683ID           | Unfiled       | Unfiled    | Unfiled       | Unfiled  | OPTICAL ATTENUATOR AND MODULATOR   |

| Disclosure Number | Filed Country | Filed Date | Patent Number                | Filed Countries in Family                       | Title                               | Status / Comment     |
|-------------------|---------------|------------|------------------------------|---|-------------------------------------|----------------------|
| ID0130            | US            | 29-Oct-93  | 5355248                      | Great Britain, United States                    | OPTICAL AMPLIFIER                   | Expired or Abandoned |
| ID0348            | US            | 13-Jun-96  | 5844926                      | United States                                   | LASERS                              | Expired or Abandoned |
| RO1269            | US            | 7-Jan-83   | 4528438                      | United States                                   | END POINT CONTROL IN PLASMA ETCHING | Expired or Abandoned |
| ID8907            | US            |            | 4911742                      | United States, Australia, France, Great Britain | OPTICAL FIBER                       | Expired or Abandoned |
| 11620ID           | US            |            | Pending prior to abandonment | Patent Cooperation Treaty, United States        | VARIABLE OPTICAL ATTENUATOR         | Expired or Abandoned |

| Disclosure Number | Filed Country | Filed Date | Patent Number | Filed Countries in Family                         | Title   |
|-------------------|---------------|------------|---------------|---|---|
| 10163ID           | US            | 28-Sep-00  | 6424755       | Canada, United States, European Patent Convention | SLOTTED MONOLITHIC OPTICAL WAVEGUIDES               |
| 11550RO           | US            | 28-Sep-00  | Pending       | Canada, United States                             | HYBRID ATTACH MIRRORS FOR A MEMS OPTICAL SWITCH     |
| 12801AU           | US            |            | 6014475       | United States, European Patent Convention         | FIBRE OPTIC CIRCULATOR                              |
| 12803AU           | US            |            | 6263131       | United States, Canada, European Patent Convention | REFLECTIVE NON RECIPROCAL OPTICAL DEVICE            |
| 12803AU           | US            |            | 6415072       | United States                                     | REFLECTIVE NON RECIPROCAL OPTICAL DEVICE            |
| 13240AU           | US            |            |               | United States                                     | POLARISATION SPLITTING CIRCULATOR METHOD AND DEVICE |
| 14081ID           | US            |            |               | United States                                     | FIBRE OPTICAL COMPONENT                             |



|         |    |  |           |   |  |
|---------|----|--|-----------|---|--|
| 14669AU | US |  |           | United States   | VARIABLE ATTENUATION AND SPECTRAL SLOPE OPTICAL DEVICE                                 |
| ID0190  | US |  | 5703976   | United States, Germany, France, Great Britain, Japan                | WAVELENGTH RESONANT FUSED FIBRE COUPLER  |
| ID0226  | GB |  | 2281787   | Great Britain   | OPTICAL WAVEGUIDE GRATINGS   |
| ID0291  | US |  | 5638473   | United States, Germany, France, Great Britain                       | OPTICAL WAVEGUIDE GRATING FILTER   |
| ID0309  | US |  | 5730888   | United States   | BRAGG GRATINGS IN WAVEGUIDES   |
| ID0355  | US |  | 5708740   | United States, Germany, France, Great Britain                       | ALL-FIBRE OPTICAL FILTER   |
| ID0421  | US |  | 5904491   | United States   | PLANAR WAVEGUIDES  |
| ID0423  | US |  | 5885881   | United States   | PLANAR WAVEGUIDE CLADDING  |
| ID0449  | US |  | 6044192   | United States, Canada, Germany, France, Great Britain, Italy, Japan | WAVEGUIDE PAIR WITH CLADDING   |
| ID8550  | GB |  | 2129152   | Great Britain   | OPTICAL FIBRES   |
| ID9170  | US |  | 4756589   | United States, Canada, Great Britain                                | BEAM SPLITTER/COMBERS  |
| ID9441  | US |  | 4801185   | United States, Germany, France, Great Britain, Japan                | DIRECTIONAL COUPLER  |
| ID9579  | GB |  | 2207254   | Great Britain   | GLASS CLAD OPTICAL FIBRE DIRECTIONAL COUPLERS  |
| ID9730  | GB |  | 2222400   | Great Britain   | DOPED ELEMENTS   |
| ID9758  | GB |  | 2238396   | Great Britain   | OPTICAL WAVEGUIDE TAPER HAVING CORE, INTERLAYER  |
| ID0444  | EP |  | EP0891570 | United States, Canada, France, Germany, Great Britain, Italy, Japan | TAPERED SINGLE MODE WAVEGUIDES COUPLED TO PHOTODETECTOR BY MULTIMODE FIBRE             |
| RO2922  | US |  | 5488679   | United States   | POLARISATION INDEPENDENT WAVELENGTH TUNABLE FILTER BASED ON BIREFRINGENCE COMPENSATION |
| 12802AU | US |  | 6466704   | United States, Canada, Patent Cooperation Treaty                    | OPTICAL FILTERING METHOD AND DEVICE  |
| 12804AU | US |  |           | United States, Canada   | WAVELENGTH DEPENDENT ISOLATOR  |

|         |    |  |         |   |  |
|---------|----|--|---------|---|--|
| 15087ID | US |  |         | United States   | AN OPTICAL GRATING DEVICE                      |
| ID0509  | US |  | 6115518 | United States,<br>Canada, Great<br>Britain, Japan                     | OPTICAL WAVEGUIDE BRAGG<br>REFLECTION GRATINGS |
| ID0997  | US |  | 6321000 | United States,<br>Canada, Germany,<br>France, Great<br>Britain, Italy | OPTICAL EQUALIZER                              |

**AMENDMENT TO THE  
PATENT ASSIGNMENT AGREEMENT**

This Amendment (this "Amendment"), effective as of November 8, 2002, to the Patent Assignment Agreement made on November 8, 2002 (the "PAA") is hereby made by and among NORTEL NETWORKS CORPORATION, a corporation duly incorporated under the laws of Canada, having its executive offices at 8200 Dixie Road, Suite 100, Brampton, Ontario L6T 5P6 Canada, and each of its subsidiaries that are listed on the signature pages hereto (collectively, the "Assigning Parties") and BOOKHAM TECHNOLOGY PLC, a public limited company incorporated under the laws of England and Wales having its executive offices at 90 Milton Park, Abingdon, Oxfordshire OX14, 4RY United Kingdom (the "Assignee") (each of the Assigning Parties and Assignee, a "Party" and, collectively, the "Parties").

WHEREAS, the Parties, having entered into the PAA, desire to amend the PAA to update the schedule of patents, patent applications and invention disclosures attached thereto.

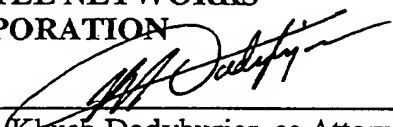
NOW THEREFORE, in consideration of the foregoing premises and the mutual terms and conditions set forth herein, and for U.S. \$1.00 (ONE DOLLAR) and other good and valuable consideration, receipt and adequacy of which is hereby acknowledged, the Parties hereby agree that the PAA be, and is, amended as follows:

1. Schedule A of the PAA is deleted in its entirety and replaced with the new Schedule A attached hereto.
2. Except as expressly amended by this Amendment, all of the terms, covenants and conditions of the PAA shall remain unamended and in full force and effect.
3. This Amendment is hereby incorporated in, and forms a part of, the PAA. For the avoidance of doubt, this Amendment shall be governed by and enforced in accordance with the laws of the State of New York, without giving effect to any conflicts of law principles.
4. This Amendment shall be binding on, and shall inure to the benefit of, the Parties and their respective successors and assigns.
5. This Amendment may be executed in any number of counterparts, each of which shall be deemed to be an original but all of which shall constitute one and the same instrument.


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IN WITNESS WHEREOF, the Parties have duly executed this Amendment as of the date first above written.

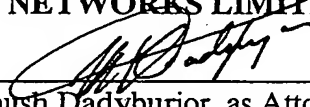
**NORTEL NETWORKS  
CORPORATION**

By:   
Name: Khush Dadyburjor, as Attorney-in-Fact

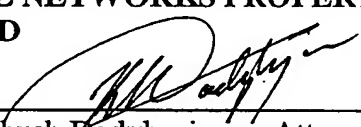
**NORTEL NETWORKS  
INCORPORATED**

By:   
Name: Khush Dadyburjor, as Attorney-in-Fact

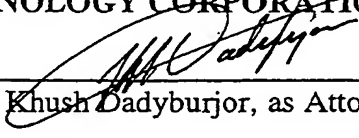
**NORTEL NETWORKS LIMITED**

By:   
Name: Khush Dadyburjor, as Attorney-in-Fact

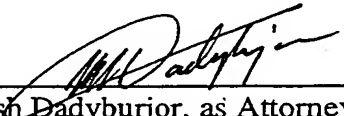
**NORTEL NETWORKS PROPERTIES  
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Name: Khush Dadyburjor, as Attorney-in-Fact

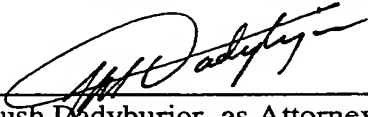
**NORTEL NETWORKS  
TECHNOLOGY CORPORATION**

By:   
Name: Khush Dadyburjor, as Attorney-in-  
Fact

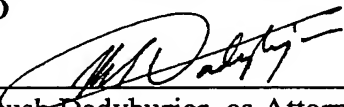
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Fact

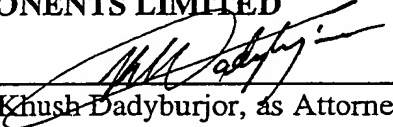
**NORTEL NETWORKS OPTICAL  
COMPONENTS (SWITZERLAND)  
GmbH**

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Name: Khush Dadyburjor, as Attorney-in-  
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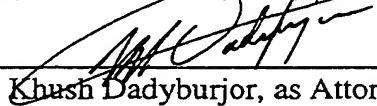
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LIMITED**

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Name: Khush Dadyburjor, as Attorney-in-  
Fact

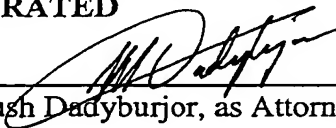
**NORTEL NETWORKS OPTICAL  
COMPONENTS LIMITED**

By:   
Name: Khush Dadyburjor, as Attorney-in-  
Fact

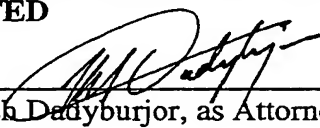
**NORTEL NETWORKS OPTICAL  
COMPONENTS INCORPORATED**

By:   
Name: Khush Dadyburjor, as Attorney-in-  
Fact

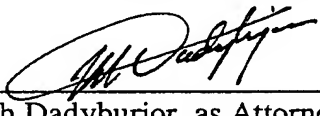
**NORTEL NETWORKS HPOCS  
INCORPORATED**

By:   
Name: Khush Dadyburjor, as Attorney-in-  
Fact

**NORTEL NETWORKS PHOTONICS  
PTY LIMITED**

By:   
Name: Khush Dadyburjor, as Attorney-in-  
Fact

**NORTEL NETWORKS SHANNON  
LIMITED**

By:   
Name: Khush Dadyburjor, as Attorney-in-  
Fact

**BOOKHAM TECHNOLOGY PLC**

By: \_\_\_\_\_

Name: \_\_\_\_\_

Title: \_\_\_\_\_

*[Handwritten signature]*

On this January, 2003 day of ~~December~~, 2002, before me appeared Khush Baidyan, the person who signed this instrument, who acknowledged that he/she signed it as a free act on his/her own behalf or on behalf of the Assigning Parties with authority to do so.

Province ~~State~~ of Ontario )  
 )  
 ~~Region~~ County of Peel )

ss.

*[Signature]*



On this 18<sup>th</sup> day of December, 2002, before me appeared Philip Davis, the person who signed this instrument, who acknowledged that he/she signed it as a free act on his/her own behalf or on behalf of Bookham Technology plc with authority to do so.

State of England )  
County of Cheshire ) ss.

*Stuart P. B. Capel*

STUART P. B. CAPEL  
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## SCHEDULE A

| Disc No. | Disclosure Title  | Cty | Serial No. | Patent No. | Sub Status | All Inventors with Dept No's | Application Title  |
|----------|---|-----|------------|------------|------------|------------------------------|--|
| 10289RO  | PHOTODETECTOR WITH SPECTRALLY EXTENDED RESPONSIVITY                             | CA  | 2,269,298  |            |            |                              | PHOTODETECTOR WITH SPECTRALLY EXTENDED RESPONSIVITY                      |
| 10289RO  | PHOTODETECTOR WITH SPECTRALLY EXTENDED RESPONSIVITY                             | US  | 09/294,114 | 6,222,200  |            |                              | PHOTODETECTOR WITH SPECTRALLY EXTENDED RESPONSIVITY                      |
| 10412RO  | EXTERNAL CAVITY LASER   | US  | 09/688,873 |            |            |                              | EXTERNAL CAVITY LASER USING ANGLE-TUNED FILTER AND METHOD OF MAKING SAME |
| 10413ID  | FIBRE TERMINATION COMPOUND GRADED INDEX LENSES                                  | US  | 09/750,874 |            |            |                              | FIBRE TERMINATION COMPOUND GRADED INDEX LENSES                           |
| 10485RO  | ELECTRICALLY CONTROLLED OPTICAL ATTENUATOR WITH COPLANAR ELECTRODES             | US  | 09/726,409 |            |            |                              | ELECTROCHROMIC OPTICAL ATTENUATOR  |
| 10509RO  | ALIGNMENT METHOD FOR SEMICONDUCTOR OPTICAL DEVICES UPON CARRIERS                | US  | 09/472,121 | 6,287,401  |            |                              | ALIGNMENT METHOD FOR SEMICONDUCTOR OPTICAL DEVICES UPON CARRIERS         |
| 10509RO  | ALIGNMENT METHOD FOR SEMICONDUCTOR OPTICAL DEVICES UPON CARRIERS                | CA  | 2,328,279  |            |            |                              | ALIGNMENT METHOD FOR SEMICONDUCTOR OPTICAL DEVICES UPON CARRIERS         |
| 11006ID  | MODULATOR ASSEMBLIES  | US  | 09/496,917 |            |            |                              | MODULATOR ASSEMBLIES   |
| 11920ID  | PUMPED OPTICAL AMPLIFICATION DEVICE   | US  | 09/557,891 |            |            |                              | PUMPED OPTICAL AMPLIFICATION DEVICE                                      |
| 11945ID  | A RAMAN FIBRE LASER   | US  | 09/573,238 |            |            |                              | A RAMAN FIBRE LASER  |
| 11954ID  | A RAMAN FIBRE LASER   | US  | 09/573,236 |            |            |                              | A RAMAN FIBRE LASER  |
| 12242RO  | INVERTED INP/INGAAS AVALANCHE PHOTODIODE  | US  | 09/733,060 |            |            |                              | EPITAXIALLY GROWN AVALANCHE PHOTODIODE                                   |
| 12339ID  | OPTICAL FIBER DEVICE  | US  | 09/653,985 |            |            |                              | OPTICAL FIBER DEVICE   |
| 12349RO  | COMPACT CHIP LABELING USING STEPPER TECHNOLOGY.                                 | CA  | 2,320,612  |            |            |                              | COMPACT CHIP LABELING USING STEPPER TECHNOLOGY                           |
| 12349RO  | COMPACT CHIP LABELING USING STEPPER TECHNOLOGY.                                 | US  | 09/688,366 |            |            |                              | COMPACT CHIP LABELING USING STEPPER TECHNOLOGY                           |
| 12526RO  | SELF ADJUSTING APPARATUS FOR GRIPPING AND MICRO-MANIPULATING CERAMIC SUBSTRATES | US  | 09/660,542 | 6,409,241  |            |                              | APPARATUS FOR GRIPPING CERAMIC SUBSTRATES                                |
| 12615ID  | PACKAGING ATMOSPHERE AND METHOD OF PACKAGING A MEMS DEVICE                      | US  | 09/676,256 |            |            |                              | PACKAGING ATMOSPHERE AND METHOD OF PACKAGING A MEMS DEVICE               |
| 12634RO  | BE DOPING OF INP  | US  | 09/741,350 |            |            |                              | STRUCTURE AND METHOD FOR DOPING OF III-V COMPOUNDS                       |
| 12665RO  | PRINT QUALITY TEST STRUCTURE FOR DEVICE MANUFACTURING.                          | US  | 09/667,620 |            |            |                              | PRINT QUALITY TEST STRUCTURE FOR LITHOGRAPHIC DEVICE MANUFACTURING       |
| 12686ID  | GLASS FIBER FIXATIVE AND FIXING PROCESS   | US  | 09/698,800 |            |            |                              | GLASS FIBER FIXATIVE AND FIXING PROCESS                                  |
| 12715RO  | METHOD OF MAKING GRATINGS ON TUNABLE LASER DEVICES                              | US  | 09/667,622 |            |            |                              | METHODS FOR MAKING PATTERNS IN RADIATION SENSITIVE POLYMERS              |

| Disc No | Disclosure title   | Clv | Serial No      | Patent No | Sub Status         | All Inventors with Dep't No's  | Applications title  |
|---------|--|-----|----------------|-----------|--------------------|--|---|
| 12800AU | SPLIT-BEAM FOURIER FILTER  | US  | 08/793,729     | 5,930,441 |                    |  | SPLIT-BEAM FOURIER FILTER   |
| 12841ID | INTEGRATED OPTICAL TRANSMITTER   | US  | 09/616,659     |           |                    |  | INTEGRATED OPTICAL TRANSMITTER  |
| 12847RO | BURIED HETEROSTRUCTURE LASER CONFINEMENT LAYER                                 | CA  | 2,328,641      |           |                    |  | CONFINEMENT LAYER OF BURIED HETEROSTRUCTURE SEMICONDUCTOR LASER                             |
| 12847RO | BURIED HETEROSTRUCTURE LASER CONFINEMENT LAYER                                 | US  | 10/014,807     |           |                    |  | CONFINEMENT LAYER OF BURIED HETEROSTRUCTURE SEMICONDUCTOR LASER                             |
| 12849ID | OPTICAL AMPLIFIER METHOD AND APPARATUS   | US  | 09/710,372     |           |                    |  | OPTICAL AMPLIFIER METHOD AND APPARATUS  |
| 12849ID | OPTICAL AMPLIFIER METHOD AND APPARATUS   | WO  | PCT/GB01/04944 |           |                    |  | OPTICAL AMPLIFIER METHOD AND APPARATUS  |
| 12948ID | OPTICAL AMPLIFIER, OPTICAL AMPLIFIER HYBRID ASSEMBLY AND METHOD OF MANUFACTURE | US  | 09/731,434     |           |                    |  | OPTICAL AMPLIFIER, OPTICAL AMPLIFIER HYBRID ASSEMBLY AND METHOD OF MANUFACTURE              |
| 12948ID | OPTICAL AMPLIFIER, OPTICAL AMPLIFIER HYBRID ASSEMBLY AND METHOD OF MANUFACTURE | CA  | 2,364,383      |           |                    |  | OPTICAL AMPLIFIER, OPTICAL AMPLIFIER HYBRID ASSEMBLY AND METHOD OF MANUFACTURE              |
| 13063CK | AGILE, WIDELY TUNABLE DIODE LASER WITH NARROW LINEWIDTH                        | US  | 08/726,049     | 6,041,071 |                    |  | ELECTRO-OPTICALLY TUNABLE EXTERNAL CAVITY MIRROR FOR A NARROW LINEWIDTH SEMICONDUCTOR LASER |
| 13063CK | AGILE, WIDELY TUNABLE DIODE LASER WITH NARROW LINEWIDTH                        | US  | 60/004,620     |           |                    |  | AGILE, WIDELY TUNABLE DIODE LASER WITH NARROW LINEWIDTH                                     |
| 13063CK | AGILE, WIDELY TUNABLE DIODE LASER WITH NARROW LINEWIDTH                        | US  | 09/532,529     |           |                    |  | ELECTRO-OPTICALLY TUNABLE EXTERNAL CAVITY MIRROR FOR A NARROW LINEWIDTH SEMICONDUCTOR LASER |
| 13144CK | LASER WITH SETTABLE WAVELENGTHS  | US  | 0              |           | Mailed Application | TAYEBATI, PARVIZ (7043-5010439), VAKHSHOORI, DARYOOSH (7068-5010442) | LASER WITH SETTABLE WAVELENGTHS   |
| 13144CK | LASER WITH SETTABLE WAVELENGTHS  | US  | 60/099,252     |           |                    |  | LASER WITH SETTABLE WAVELENGTHS   |
| 13144CK | LASER WITH SETTABLE WAVELENGTHS  | US  | 60/099,308     |           |                    |  | LASER WITH SETTABLE WAVELENGTHS   |
| 13144CK | LASER WITH SETTABLE WAVELENGTHS  | US  | 09/386,604     |           |                    |  | LASER WITH SETTABLE WAVELENGTHS   |
| 13144CK | LASER WITH SETTABLE WAVELENGTHS  | CA  | 2,317,133      |           |                    |  | LASER WITH SETTABLE WAVELENGTHS   |
| 13199CK | SINGLE ETALON OPTICAL WAVELENGTH REFERENCE DEVICE                              | US  | 60/148,017     |           |                    |  | SINGLE ETALON OPTICAL WAVELENGTH REFERENCE DEVICE   |
| 13199CK | SINGLE ETALON OPTICAL WAVELENGTH REFERENCE DEVICE                              | US  | 09/636,817     |           |                    |  | SINGLE ETALON OPTICAL WAVELENGTH REFERENCE DEVICE   |
| 13199CK | SINGLE ETALON OPTICAL WAVELENGTH REFERENCE DEVICE                              | WO  | PCT/US00/21904 |           | Nat'l Phase Filed  |  | SINGLE ETALON OPTICAL WAVELENGTH REFERENCE DEVICE   |
| 13199CK | SINGLE ETALON OPTICAL WAVELENGTH REFERENCE DEVICE                              | CA  | 2,381,662      |           |                    |  | SINGLE ETALON OPTICAL WAVELENGTH REFERENCE DEVICE   |
| 13199CK | SINGLE ETALON OPTICAL WAVELENGTH REFERENCE DEVICE                              | EP  | 973357.7       |           |                    |  | SINGLE ETALON OPTICAL WAVELENGTH REFERENCE DEVICE   |

| Disc No. | Disclosure Title  | Ctry | Serial No.     | Patent No. | Sub-Status        | All Inventors with Dept No. | Application Title  |
|----------|---|------|----------------|------------|-------------------|-----------------------------|--|
| 13201CK  | DOUBLE ETALON OPTICAL WAVELENGTH REFERENCE DEVICE                                 | US   | 60/148,148     |            |                   |                             | DOUBLE ETALON OPTICAL WAVELENGTH REFERENCE DEVICE                              |
| 13201CK  | DOUBLE ETALON OPTICAL WAVELENGTH REFERENCE DEVICE                                 | WO   | PCT/US00/21905 |            | Nat'l Phase Filed |                             | DOUBLE ETALON OPTICAL WAVELENGTH REFERENCE DEVICE                              |
| 13201CK  | DOUBLE ETALON OPTICAL WAVELENGTH REFERENCE DEVICE                                 | US   | 09/636,807     |            |                   |                             | DOUBLE ETALON OPTICAL WAVELENGTH REFERENCE DEVICE                              |
| 13201CK  | DOUBLE ETALON OPTICAL WAVELENGTH REFERENCE DEVICE                                 | CA   | 2,381,665      |            |                   |                             | DOUBLE ETALON OPTICAL WAVELENGTH REFERENCE DEVICE                              |
| 13201CK  | DOUBLE ETALON OPTICAL WAVELENGTH REFERENCE DEVICE                                 | EP   | 00957375.9     |            |                   |                             | DOUBLE ETALON OPTICAL WAVELENGTH REFERENCE DEVICE                              |
| 13391RO  | MONOLITHICALLY INTEGRATED OPTICALLY PUMPED EDGE EMITTING SEMICONDUCTOR LASER      | US   | 09/987,785     |            |                   |                             | MONOLITHICALLY INTEGRATED OPTICALLY-PUMPED EDGE-EMITTING SEMICONDUCTOR LASER   |
| 13417RO  | GRATING ETCHING WITH INP MASKING  | US   | 09/750,124     |            |                   |                             | METHOD OF ETCHING PATTERNS INTO EPITAXIAL MATERIAL                             |
| 13444CK  | MICRORELATION FOR DWDM TELECOMMUNICATIONS APPLICATIONS                            | US   | 09/859,938     |            |                   |                             | MICRORELATION FOR DWDM TELECOMMUNICATIONS APPLICATIONS                         |
| 13444CK  | MICRORELATION FOR DWDM TELECOMMUNICATIONS APPLICATIONS                            | WO   | PCT/US01/14918 |            |                   |                             | MICRORELATION FOR DWDM TELECOMMUNICATIONS APPLICATIONS                         |
| 13494ID  | METHOD AND APPARATUS FOR MINIMIZING GAIN DEVIATION IN...                          | US   | 09/821,580     |            |                   |                             | METHOD AND APPARATUS FOR MINIMIZING GAIN DEVIATION IN OPTICAL FIBRE AMPLIFIERS |
| 13494ID  | METHOD AND APPARATUS FOR MINIMIZING GAIN DEVIATION IN...                          | EP   | 02251194.3     |            |                   |                             | METHOD AND APPARATUS FOR MINIMIZING GAIN DEVIATION IN OPTICAL FIBRE AMPLIFIERS |
| 13494ID  | METHOD AND APPARATUS FOR MINIMIZING GAIN DEVIATION IN...                          | CA   | 2,374,557      |            |                   |                             | METHOD AND APPARATUS FOR MINIMIZING GAIN DEVIATION IN OPTICAL FIBRE AMPLIFIERS |
| 13495ID  | OPTICAL MODULATORS  | US   | 09/679,165     | 6,377,717  |                   |                             | OPTICAL MODULATORS   |
| 13502RO  | ANGLED OUTPUT BALL TAPERED OPTICAL FIBER TERMINATION                              | US   | 09/735,571     |            |                   |                             | OPTICAL FIBER TERMINATION  |
| 13524RO  | A STATISTICAL MODEL USED TO CONTROL THE LASING WAVELENGTH OF SEMICONDUCTOR LASERS | US   | 10/196,956     |            |                   |                             | A METHOD AND SYSTEM FOR FABRICATING SEMICONDUCTOR LASERS                       |
| 13544RO  | SEMICONDUCTOR LASERS  | US   | 10/141,914     |            |                   |                             | SEMICONDUCTOR LASER  |
| 13584RO  | ELECTRODE METAL TERMINATION FOR REDUCED LOCAL HEATING                             | US   | 09/709,646     |            |                   |                             | ELECTRODE TERMINATION FOR REDUCED LOCAL HEATING IN AN OPTICAL DEVICE           |
| 13584RO  | ELECTRODE METAL TERMINATION FOR REDUCED LOCAL HEATING                             | CA   | 2,361,683      |            |                   |                             | ELECTRODE TERMINATION FOR REDUCED LOCAL HEATING IN AN OPTICAL DEVICE           |
| 13584RO  | ELECTRODE METAL TERMINATION FOR REDUCED LOCAL HEATING                             | EP   | 01309541.9     |            |                   |                             | ELECTRODE TERMINATION FOR REDUCED LOCAL HEATING IN AN OPTICAL DEVICE           |
| 13591ID  | OPTICAL MODULATORS  | GB   | 0031241.3      |            |                   |                             | OPTICAL MODULATORS   |

| Disc No. | Disclosure Title   | Gty | Serial No.      | Patent No. | Sub Status         | All Inventors with Dept No.                                 | Application Title   |
|----------|--|-----|-----------------|------------|--------------------|---|---|
| 13591ID  | OPTICAL MODULATORS   | WO  | PCT/GB01/05582  |            |                    |   | OPTICAL MODULATOR   |
| 13614ID  | OPTICAL PULSE GENERATION   | US  | 09/993,849      |            |                    |   | OPTICAL PULSE GENERATION  |
| 13614ID  | OPTICAL PULSE GENERATION   | WO  | PCT/GB02/03664  |            |                    |   | OPTICAL PULSE GENERATION  |
| 13721RO  | AN NON-DESTRUCTIVE AND FAST WAY TO DETECT DIFFUSION DEPTH AND UNIFORMITY CROSS A WAFER | US  | 0               |            | Mailed Application | QIAN, YAHONG (C115-0531819,1), AN, SERGUEI (5C33-0510038,1) | AN NON-DESTRUCTIVE AND FAST WAY TO DETECT DIFFUSION DEPTH AD UNIFORMITY CROSS A WAFER             |
| 13813RO  | HIGH POWER LASER DIODE AND METHOD OF FABRICATION THEREOF                               | US  | 10/141,862      |            |                    |   | MONOLITHICALLY INTEGRATED HIGH POWER LASER OPTICAL DEVICE   |
| 13816RO  | APPARATUS FOR MONITORING THE OUTPUT POWER OF DIODE LASERS AND MODULATORS               |     |                 |            | Unfiled            |   |   |
| 14224ID  | ISOLATION OF MICROWAVE TRANSMISSION LINES  | US  | 10/032,416      |            |                    |   | ISOLATION OF MICROWAVE TRANSMISSION LINES   |
| 14404RO  | HYBRID CONFINEMENT LAYERS OF BURIED HETEROSTRUCTURE SEMICONDUCTOR LASER                | US  | 10/027,229      |            |                    |   | HYBRID CONFINEMENT LAYERS OF BURIED HETEROSTRUCTURE SEMICONDUCTOR LASER                           |
| 14429ID  | OPTICAL BEAM SAMPLING MONITOR  | US  | 10/006,509      |            |                    |   | OPTICAL BEAM SAMPLING MONITOR   |
| 14433JD  | TITANIUM NITRIDE DIFFUSION BARRIER FOR USE IN NON-SILICON TECHNOLOGIES AND METHOD      | CA  | 2,292,769       |            |                    |   | A TITANIUM NITRIDE DIFFUSION BARRIER FOR USE IN NON-SILICON TECHNOLOGIES AND METALLIZATION METHOD |
| 14433JD  | TITANIUM NITRIDE DIFFUSION BARRIER FOR USE IN NON-SILICON TECHNOLOGIES AND METHOD      | EP  | 99919257.8      |            |                    |   | A TITANIUM NITRIDE DIFFUSION BARRIER FOR USE IN NON-SILICON TECHNOLOGIES AND METALLIZATION METHOD |
| 14433JD  | TITANIUM NITRIDE DIFFUSION BARRIER FOR USE IN NON-SILICON TECHNOLOGIES AND METHOD      | JP  | 11-552490       |            |                    |   | A TITANIUM NITRIDE DIFFUSION BARRIER FOR USE IN NON-SILICON TECHNOLOGIES AND METALLIZATION METHOD |
| 14433JD  | TITANIUM NITRIDE DIFFUSION BARRIER FOR USE IN NON-SILICON TECHNOLOGIES AND METHOD      | US  | 09/063,173      | 6,204,560  |                    |   | TITANIUM NITRIDE DIFFUSION BARRIER FOR USE IN NON-SILICON TECHNOLOGIES AND METHOD                 |
| 14433JD  | TITANIUM NITRIDE DIFFUSION BARRIER FOR USE IN NON-SILICON TECHNOLOGIES AND METHOD      | KR  | 10-1999-7012042 |            |                    |   | A TITANIUM NITRIDE DIFFUSION BARRIER FOR USE IN NON-SILICON TECHNOLOGIES AND METALLIZATION METHOD |
| 14433JD  | TITANIUM NITRIDE DIFFUSION BARRIER FOR USE IN NON-SILICON TECHNOLOGIES AND METHOD      | WO  | PCT/EP99/02665  |            | Nat'l Phase Filed  |   | A TITANIUM NITRIDE DIFFUSION BARRIER FOR USE IN NON-SILICON TECHNOLOGIES AND METALLIZATION METHOD |

| Disc No. | Disclosure title  | Cty | Serial No.     | Patent No. | Sub-Status        | All Inventors with Dept No.  | Application title   |
|----------|---|-----|----------------|------------|-------------------|--|---|
| 14433JD  | TITANIUM NITRIDE DIFFUSION BARRIER FOR USE IN NON-SILICON TECHNOLOGIES AND METHOD | JP  | 0              |            |                   | DAETWYLER, ANDREAS (-GPS4097856), DEUTSCH, URS (EXTR-GPS4097859), HARDER, CHRISTOPH (AA54-5050202), HEUBERGER, WILHELM (EXTR-GPS4097866), LATTA, ERNST-EBERHARD (EXTR-GPS4097878), JAKUBOWICZ, ABRAM (-GPS4097872), OOSEBRUG, ALBERTUS (-GPS4097875) | A TITANIUM NITRIDE DIFFUSION BARRIER FOR USE IN NON-SILICON TECHNOLOGIES AND METALLIZATION METHOD |
| 14434JD  | STABILIZED LASER SOURCE   | EP  | 99810837.7     |            |                   |  | STABILIZED LASER SOURCE   |
| 14434JD  | STABILIZED LASER SOURCE   | US  | 10/049,886     |            |                   |  | STABILIZED LASER SOURCE   |
| 14435JD  | SUPPORTING STRUCTURE FOR FIBER FIXING AND SUBMICRON FINE ALIGNMENT                | EP  | 99811030.8     |            |                   |  | SUPPORTING STRUCTURE FOR FIBER FIXING AND SUBMICRON FINE ALIGNMENT                                |
| 14435JD  | SUPPORTING STRUCTURE FOR FIBER FIXING AND SUBMICRON FINE ALIGNMENT                | WO  | PCT/IB00/01530 |            | Nat'l Phase Filed |  | SUPPORTING STRUCTURE FOR OPTICAL FIBER FIXING AND SUBMICRON FINE ALIGNMENT                        |
| 14435JD  | SUPPORTING STRUCTURE FOR FIBER FIXING AND SUBMICRON FINE ALIGNMENT                | US  | PCT/IB00/01530 |            | Nat'l Phase Filed |  | SUPPORTING STRUCTURE FOR FIBER FIXING AND SUBMICRON FINE ALIGNMENT                                |
| 14435JD  | SUPPORTING STRUCTURE FOR FIBER FIXING AND SUBMICRON FINE ALIGNMENT                | CA  | 2,390,916      |            | Nat'l Phase Filed |  | SUPPORTING STRUCTURE FOR FIBER FIXING AND SUBMICRON FINE ALIGNMENT                                |
| 14480RO  | GAIN COUPLED DISTRIBUTED FEEDBACK LASER USING SELF-ASSEMBLED QUANTUM DOTS         |     |                |            | Unfiled           |  |   |
| 14549JD  | HIGH POWER SEMICONDUCTOR LASER DIODE  | US  | 09/852,994     |            |                   |  | HIGH POWER SEMICONDUCTOR LASER DIODE  |
| 14549JD  | HIGH POWER SEMICONDUCTOR LASER DIODE  | CA  | 2,385,653      |            |                   |  | HIGH POWER SEMICONDUCTOR LASER DIODE  |
| 14549JD  | HIGH POWER SEMICONDUCTOR LASER DIODE  | EP  | 2405380.3      |            |                   |  | HIGH POWER SEMICONDUCTOR LASER DIODE  |
| 14549JD  | HIGH POWER SEMICONDUCTOR LASER DIODE  | JP  | 2002-134066    |            |                   |  | HIGH POWER SEMICONDUCTOR LASER DIODE  |
| 14551JD  | CARRIER DESIGN FOR MODULES WITH HIGH POWER LASER DIODES                           | US  | 10/026,150     |            |                   |  | HIGH POWER LASER CARRIER  |
| 14552JD  | ANTI-REFLECTION COATINGS FOR SEMICONDUCTOR LASERS                                 | US  | 09/993,824     |            |                   |  | ANTI-REFLECTION COATINGS FOR SEMICONDUCTOR LASERS   |
| 14592ID  | OPTICAL COMPONENT ALIGNMENT TECHNIQUE   | US  | 10/024,972     |            |                   |  | GIMBALLED LENS MOUNT AND ALIGNMENT ASSEMBLY FOR A SENSITIVE OPTICAL ALIGNMENT                     |
| 14676RO  | ENHANCED LINK OPERATION OF DIRECTLY MODULATED LASERS USING GAIN-COUPLED GRATINGS  | US  | 60/334,013     |            |                   |  | ENHANCED LINK OPERATION OF DIRECTLY MODULATED LASERS USING GAIN-COUPLED GRATINGS                  |

| Disc No | Disclosure Title  | Cl. | Serial No  | Parent No | Sub Status | All Inventors with Dept Index | Application Title   |
|---------|---|-----|------------|-----------|------------|-------------------------------|---|
| 14676RO | ENHANCED LINK OPERATION OF DIRECTLY MODULATED LASERS USING GAIN-COUPLED GRATINGS            | US  | 10/025,866 |           |            |                               | ENHANCED LINK OPERATION OF DIRECTLY MODULATED LASERS COUPLED-COUPLED GRATINGS             |
| 14681ID | THERMAL COMPENSATION AND ALIGNMENT FOR OPTICAL DEVICES                                      | US  | 10/032,421 |           |            |                               | THERMAL COMPENSATION AND ALIGNMENT FOR OPTICAL DEVICES                                    |
| 14716RO | WAVEGUIDE MODE STRIPPER FOR INTEGRATED OPTICAL COMPONENTS                                   | US  | 10/073,101 |           |            |                               | WAVEGUIDE MODE STRIPPER FOR INTEGRATED OPTICAL COMPONENTS                                 |
| 14794RO | A METHOD FOR MAKING FLOATING GRATINGS   | US  | 10/259,745 |           |            |                               | METHOD AND APPARATUS FOR FLOATING GRATINGS IN DFB (DISTRIBUTED FEEDBACK) LASERS           |
| 14854RO | A METHOD FOR MINIMIZING CROSSTALK DUE TO LASER WAVELENGTH VARIATIONS WITH NON-IDEAL FILTERS |     |            |           | Unfiled    |                               |   |
| 14864RO | POLARIZATION AND WAVELENGTH INDEPENDENT MHZ SPEED OPTICAL ATTENUATOR                        | US  | 10/190,592 |           |            |                               | CURRENT TUNED MACH-ZEHNDER OPTICAL ATTENUATOR   |
| 14942RO | RE-CIRCULATING OPTICAL PULSE GENERATOR  | US  | 10/116,168 |           |            |                               | RE-CIRCULATING OPTICAL PULSE GENERATOR  |
| 15004RO | DEFORMABLE POLYMER MICRO MIRRORS (DPMM)   | US  | 10/098,446 |           |            |                               | MICRO-MIRRORS WITH VARIABLE FOCAL LENGTH, AND OPTICAL COMPONENTS COMPRISING MICRO-MIRRORS |
| 15004RO | DEFORMABLE POLYMER MICRO MIRRORS (DPMM)   | US  | 10/098,446 |           |            |                               | MICRO-MIRRORS WITH VARIABLE FOCAL LENGTH, AND OPTICAL COMPONENTS COMPRISING MICRO-MIRRORS |
| 15004RO | DEFORMABLE POLYMER MICRO MIRRORS (DPMM)   | US  | 10/098,446 |           |            |                               | MICRO-MIRRORS WITH VARIABLE FOCAL LENGTH, AND OPTICAL COMPONENTS COMPRISING MICRO-MIRRORS |
| 15093RO | MULTIPLE-CONTACT SEMICONDUCTOR OPTICAL AMPLIFIERS   | US  | 60/414,404 |           |            |                               | MULTIPLE-CONTACT OPTICAL AMPLIFIERS   |
| 15095RO | FREQUENCY IDENTIFICATION WITH A FREQUENCY LOCKER  | US  | 10/108,856 |           |            |                               | FREQUENCY IDENTIFICATION WITH FREQUENCY LOCKER  |
| 15113CK | METHOD TO IMPROVE TEMPERATURE STABILITY OF FREQUENCY LOCKER IN OPTOELECTRONIC MODULES       | US  | 10/165,465 |           |            |                               | WAVELENGTH STABILIZED OPTICAL DEVICE  |
| 15116JD | NEW STRAIGHT-FLARED-STRAIGHT WAVEGUIDE DESIGN   | US  | 10/131,335 |           |            |                               | HIGH POWER SEMICONDUCTOR LASER DIODE AND METHOD FOR MAKING SUCH A DIODE                   |
| 15117JD | PUMP LASER DIODE WITH IMPROVED WAVELENGTH STABILITY   | US  | 0          |           |            |                               | *PUMP LASER DIODE WITH IMPROVED WAVELENGTH STABILITY                                      |
| 15138ID | AN IMPROVED METHOD FOR TERMINATING AN OPTICAL WAVEGUIDE INTO AN OPTICAL COMPONENT           | US  | 10/161,523 |           |            |                               | AN IMPROVED METHOD FOR TERMINATING AN OPTICAL WAVEGUIDE INTO AN OPTICAL COMPONENT         |

| Disc No. | Disclosure Title   | CU | Serial No. | Patent No. | Sub Status         | All Inventors with Dept. No.s  | Application Title   |
|----------|--|----|------------|------------|--------------------|--|---|
| 15142RO  | SINGLE MODE, HIGH INDEX CONTRAST POLYMER FLEXIBLE WAVEGUIDES   | US | 60/352,572 |            |                    |  | FLEXIBLE POLYMER WAVEGUIDES FOR OPTICAL WIRE BONDS                          |
| 15142RO  | SINGLE MODE, HIGH INDEX CONTRAST POLYMER FLEXIBLE WAVEGUIDES   | US | 60/352,572 |            |                    |  | FLEXIBLE POLYMER WAVEGUIDES FOR OPTICAL WIRE BONDS                          |
| 15150RO  | METHOD FOR INTEGRATING A LASER WITH A WAVEGUIDE IN A SINGLE EPITAXIAL GROWTH STEP                                | US | 0          |            | Mailed Application | GLEW, RICK (C116-2819324), BETTY, IAN (5C33-0519725), GREENSPAN, JONATHAN (C116-0262541)   | METHOD FOR INTEGRATING OPTICAL DEVICES IN A SINGLE EPITAXIAL GROWTH STEP    |
| 15150RO  | METHOD FOR INTEGRATING A LASER WITH A WAVEGUIDE IN A SINGLE EPITAXIAL GROWTH STEP                                | US | 0          |            | Mailed Application | GLEW, RICK (C116-2819324), BETTY, IAN (5C33-0519725), GREENSPAN, JONATHAN (C116-0262541)   | METHOD FOR INTEGRATING OPTICAL DEVICES IN A SINGLE EPITAXIAL GROWTH STEP    |
| 15164RO  | A DOPANT-INDUCED REAL REFRACTIVE INDEX-GUIDED SELF-ALIGNED LASER STRUCTURE WITH INTEGRAL CURRENT BLOCKING LAYER. | US | 0          |            | Mailed Application | GLEW, RICK (C116-2819324), REID, BENOIT (5C32-0531388), LICHTENSTEIN, NORBERT L (AA55-5050260), FIFY, ARNAUD (AA55-5053568)      | A GUIDED SELF-ALIGNED LASER STRUCTURE WITH INTEGRAL CURRENT BLOCKING LAYER  |
| 15164RO  | A DOPANT-INDUCED REAL REFRACTIVE INDEX-GUIDED SELF-ALIGNED LASER STRUCTURE WITH INTEGRAL CURRENT BLOCKING LAYER. | US | 0          |            | Mailed Application | GLEW, RICK (C116-2819324), REID, BENOIT (5C32-0531388), LICHTENSTEIN, NORBERT L (AA55-5050260), FIFY, ARNAUD (AA55-5053568)      | A GUIDED SELF-ALIGNED LASER STRUCTURE WITH INTEGRAL CURRENT BLOCKING LAYER  |
| 15181ID  | LASER TRANSMITTER  | US | 60/391,648 |            |                    |  | LASER TRANSMITTER   |
| 15181ID  | LASER TRANSMITTER  | US | 60/391,648 |            |                    |  | LASER TRANSMITTER   |
| 15193RO  | OPTIMIZED PERFORMANCE OF INGAASP/INP COMPACT ON-CHIP POLARIZATION CONVERTER                                      | US | 60/380,261 |            |                    |  | OPTIMIZED PERFORMANCE OF INGAASP/INP COMPACT ON-CHIP POLARIZATION CONVERTER |
| 15193RO  | OPTIMIZED PERFORMANCE OF INGAASP/INP COMPACT ON-CHIP POLARIZATION CONVERTER                                      | US |            |            | Mailed Application | EL-REFAEI, HATEM (5C33-0273812), JONES, TREVOR (C115-1342592,2), YEVICK, D (EXTR-GPS0380642,2)                                   | OPTIMIZED PERFORMANCE OF INGAASP/INP COMPACT ON-CHIP POLARIZATION CONVERTER |
| 15320RO  | ELECTRO-OPTIC MODULATOR WITH CONTINUOUSLY ADJUSTABLE CHIRP   | US | 0          |            | Mailed Application | PROSYK, KELVIN (5C33-0526051), BETTY, IAN (5C33-0519725)   | ELECTRO-OPTIC MODULATOR WITH CONTINUOUSLY ADJUSTABLE CHIRP                  |
| 15338RO  | HIGH POWER DISTRIBUTED FEEDBACK LASER  |    |            |            | Unfiled            |  |   |
| 15386JD  | RIDGE WAVEGUIDE LASER DIODE WITH COMPLEX INDEX GUIDING LAYER   | US | 0          |            | Mailed Application | TRAUT, SILKE (4212-5050415), SCHMIDT, BERTHOLD (AA54-5050359,4), SVERDLOV, BORIS (AA54-5050400,1), THIES, ACHIM (4212-5050409,1) | HIGH POWER SEMICONDUCTOR LASER DIODE AND METHOD FOR MAKING SUCH A DIODE     |
| 15389JD  | LASER STABILIZATION USING VERY HIGH RELATIVE FEEDBACK  |    |            |            | Unfiled            |  |   |



| Disc No | Disclosure Title   | Ct | Serial No  | Patent No | Sub Status         | All inventors with Dept No  | Application title  |
|---------|--|----|------------|-----------|--------------------|---|--|
| 15390RO | ON-CHIP POLARIZATION SPLITTER/COMBINER DEVICE  | US | 60/404,166 |           |                    |   | ON-CHIP POLARIZATION SPLITTER/COMBINER DEVICE                              |
| 15390RO | ON-CHIP POLARIZATION SPLITTER/COMBINER DEVICE  | US | 60/404,166 |           |                    |   | ON-CHIP POLARIZATION SPLITTER/COMBINER DEVICE                              |
| 15399JD | A GUIDED SELF-ALIGNED LASER STRUCTURE WITH INTEGRAL CURRENT BLOCKING LAYER   | US | 60/390,882 |           |                    |   | A GUIDED SELF-ALIGNED LASER STRUCTURE WITH INTEGRAL CURRENT BLOCKING LAYER |
| 15399JD | A GUIDED SELF-ALIGNED LASER STRUCTURE WITH INTEGRAL CURRENT BLOCKING LAYER   | US |            |           | Mailed Application | LICHTENSTEIN, NORBERT L (AA55-5050260), FLY, ARNAUD (AA55-5053568,1), SCHMIDT, BERTHOLD (AA54-5050359,2), REID, BENOIT (5C32-0531388,2), KNIGHT, D. GORDON (C116-1529664,1) | A GUIDED SELF-ALIGNED LASER STRUCTURE WITH INTEGRAL CURRENT BLOCKING LAYER |
| 15502RO | A P-SUBSTRATE SELF-ALIGNED LASER STRUCTURE WITH IRON DOPED CURRENT BLOCKING LAYERS   |    |            |           | Unfiled            |   |  |
| 15507RO | A MAGNETO-OPTIC NONRECIPROCAL WAVEGUIDE TE/TM MODE CONVERTER IN SEMICONDUCTING MATERIALS   |    |            |           | Unfiled            |   |  |
| 15558RO | MANUFACTURE OF A GRATING TEMPLATE AND ITS TRANSFER INTO AL (IN, GA)AS MATERIAL USING IN-SITU ETCHING AND REGROWTH INSIDE A GROWTH REACTOR. |    |            |           | Unfiled            |   |  |
| 15592RO | ETCHING OF INDEX- OR GAIN-COUPLED GRATINGS INTO INGAASP MATERIAL USING IN-SITU ETCHING IN A GROWTH REACTOR                                 |    |            |           | Unfiled            |   |  |
| 15649JD | LASER STRUCTURE WITH LARGE OPTICAL SUPERLATTICE WAVEGUIDE  |    |            |           | Unfiled            |   |  |
| 15655RO | HIGH TEMPERATURE OPERATION LASER DIODES  |    |            |           | Unfiled            |   |  |
| 15656RO | FABRICATION OF A BURIED HETEROSTRUCTURE LASER WITH AN INGAASP ACTIVE LAYER USING IN-SITU ETCHING IN A GROWTH REACTOR                       |    |            |           | unfiled            |   |  |
| HQ0054  | SUPERIMPOSED GRATING WDM TUNABLE LASERS  | CA | 2,228,683  | 2,228,683 |                    |   | SUPERIMPOSED GRATING WDM TUNABLE LASERS                                    |
| HQ0054  | SUPERIMPOSED GRATING WDM TUNABLE LASERS  | US | 09/253,129 | 6,141,370 |                    |   | SUPERIMPOSED GRATING WDM TUNABLE LASERS                                    |

| Disc No | Disclosure title                                      | CT | Serial No   | Patent No    | Sub Status        | All inventors with Dept. Notes | Application title                                     |
|---------|---|----|-------------|--------------|-------------------|--------------------------------|---|
| ID0032  | OPTO ELECTRONIC COMPONENTS                            | US | 08/319,435  | 5,534,442    |                   |                                | OPTO ELECTRONIC COMPONENTS                            |
| ID0079  | SEMICONDUCTOR - SLICE CLEAVING                        | GB | 9216363.3   | 2 269 268    |                   |                                | SEMICONDUCTOR - SLICE CLEAVING                        |
| ID0079  | SEMICONDUCTOR - SLICE CLEAVING                        | US | 08/093,766  | 5,393,707    |                   |                                | SEMICONDUCTOR - SLICE CLEAVING                        |
| ID0094  | HYBRID OPTIC SOLUTION                                 | DE | 95307824.3  | 695 04 280.7 |                   |                                | HYBRID OPTIC SOLUTION                                 |
| ID0094  | HYBRID OPTIC SOLUTION                                 | FR | 95307824.3  | 0 713 271    |                   |                                | HYBRID OPTIC SOLUTION                                 |
| ID0094  | HYBRID OPTIC SOLUTION                                 | GB | 9423282.4   | 2 295 265    |                   |                                | HYBRID OPTIC SOLUTION                                 |
| ID0094  | HYBRID OPTIC SOLUTION                                 | JP | 293046/1995 |              |                   |                                | HYBRID OPTIC SOLUTION                                 |
| ID0094  | HYBRID OPTIC SOLUTION                                 | US | 08/560,312  | 5,668,823    |                   |                                | HYBRID OPTIC SOLUTION                                 |
| ID0134  | SEMICONDUCTOR ETCHING PROCESS                         | FR | 94301114.8  | 0 614 214    |                   |                                | SEMICONDUCTOR ETCHING PROCESS                         |
| ID0134  | SEMICONDUCTOR ETCHING PROCESS                         | GB | 94301114.8  | 0 614 214    |                   |                                | SEMICONDUCTOR ETCHING PROCESS                         |
| ID0134  | SEMICONDUCTOR ETCHING PROCESS                         | DE | 69401370.6  | 69401370.6   |                   |                                | SEMICONDUCTOR ETCHING PROCESS                         |
| ID0134  | SEMICONDUCTOR ETCHING PROCESS                         | GB | 9303257.1   | 2 275 364    |                   |                                | SEMICONDUCTOR ETCHING PROCESS                         |
| ID0134  | SEMICONDUCTOR ETCHING PROCESS                         | JP | 6-45068     |              |                   |                                | SEMICONDUCTOR ETCHING PROCESS                         |
| ID0134  | SEMICONDUCTOR ETCHING PROCESS                         | US | 08/197,071  | 5,419,804    |                   |                                | SEMICONDUCTOR ETCHING PROCESS                         |
| ID0137  | PROVIDING OPTICAL COUPLING BETWEEN OPTICAL COMPONENTS | GB | 9417975.1   | 2 293 248    |                   |                                | PROVIDING OPTICAL COUPLING BETWEEN OPTICAL COMPONENTS |
| ID0137  | PROVIDING OPTICAL COUPLING BETWEEN OPTICAL COMPONENTS | US | 08/507,613  | 5,574,811    |                   |                                | PROVIDING OPTICAL COUPLING BETWEEN OPTICAL COMPONENTS |
| ID0170  | INJECTION LASER AND PHOTODIODE ASSEMBLY               | US | 08/201,473  | 5,365,534    |                   |                                | INJECTION LASER AND PHOTODIODE ASSEMBLY               |
| ID0193  | FILAMENT COOLER                                       | GB | 9404290.0   | 2 287 244    |                   |                                | FILAMENT COOLER                                       |
| ID0193  | FILAMENT COOLER                                       | US | 08/388,151  | 5,568,728    |                   |                                | FILAMENT COOLER                                       |
| ID0199  | CO & COUNTER-PUMPED OPTICAL AMPLIFIER                 | US | 08/303,367  | 5,542,011    |                   |                                | CO & COUNTER-PUMPED OPTICAL AMPLIFIER                 |
| ID0206  | ELECTRO ABSORPTION OPTICAL MODULATORS                 | US | 08/303,374  | 5,530,580    |                   |                                | ELECTRO ABSORPTION OPTICAL MODULATORS                 |
| ID0206  | ELECTRO ABSORPTION OPTICAL MODULATORS                 | EP | 94306216.6  | 0 643 317    | Nat'l Phase Filed |                                | ELECTRO ABSORPTION OPTICAL MODULATORS                 |
| ID0206  | ELECTRO ABSORPTION OPTICAL MODULATORS                 | GB | 9417001.6   | 2 281 785    |                   |                                | ELECTRO ABSORPTION OPTICAL MODULATORS                 |

| Disc No | Discipline Title   | Cy | Serial No  | Patent No    | Sub Status        | All Inventors with Dept No's | Application title  |
|---------|--|----|------------|--------------|-------------------|------------------------------|--|
| ID0206  | ELECTRO ABSORPTION OPTICAL MODULATORS  | DE | 94306216.6 | 694 26 796.1 |                   |                              | ELECTRO ABSORPTION OPTICAL MODULATORS  |
| ID0206  | ELECTRO ABSORPTION OPTICAL MODULATORS  | FR | 94306216.6 | 0 643 317    |                   |                              | ELECTRO ABSORPTION OPTICAL MODULATORS  |
| ID0206  | ELECTRO ABSORPTION OPTICAL MODULATORS  | JP | 216309/94  |              |                   |                              | ELECTRO ABSORPTION OPTICAL MODULATORS  |
| ID0216  | PROVIDING OPTICAL COUPLING WITH SINGLE CRYSTAL SUBSTRATE MOUNTED ELECTRO-OPTIC TRANSDUCERS | DE | 94305060.9 | 694 10 032.3 |                   |                              | PROVIDING OPTICAL COUPLING WITH SINGLE CRYSTAL SUBSTRATE MOUNTED ELECTRO-OPTIC TRANSDUCERS |
| ID0216  | PROVIDING OPTICAL COUPLING WITH SINGLE CRYSTAL SUBSTRATE MOUNTED ELECTRO-OPTIC TRANSDUCERS | FR | 94305060.9 | 0 636 912    |                   |                              | PROVIDING OPTICAL COUPLING WITH SINGLE CRYSTAL SUBSTRATE MOUNTED ELECTRO-OPTIC TRANSDUCERS |
| ID0216  | PROVIDING OPTICAL COUPLING WITH SINGLE CRYSTAL SUBSTRATE MOUNTED ELECTRO-OPTIC TRANSDUCERS | GB | 9315789.9  | 2 280 544    |                   |                              | PROVIDING OPTICAL COUPLING WITH SINGLE CRYSTAL SUBSTRATE MOUNTED ELECTRO-OPTIC TRANSDUCERS |
| ID0216  | PROVIDING OPTICAL COUPLING WITH SINGLE CRYSTAL SUBSTRATE MOUNTED ELECTRO-OPTIC TRANSDUCERS | GB | 94305060.9 | 0 636 912    |                   |                              | PROVIDING OPTICAL COUPLING WITH SINGLE CRYSTAL SUBSTRATE MOUNTED ELECTRO-OPTIC TRANSDUCERS |
| ID0216  | PROVIDING OPTICAL COUPLING WITH SINGLE CRYSTAL SUBSTRATE MOUNTED ELECTRO-OPTIC TRANSDUCERS | JP | 180288/94  |              |                   |                              | PROVIDING OPTICAL COUPLING WITH SINGLE CRYSTAL SUBSTRATE MOUNTED ELECTRO-OPTIC TRANSDUCERS |
| ID0216  | PROVIDING OPTICAL COUPLING WITH SINGLE CRYSTAL SUBSTRATE MOUNTED ELECTRO-OPTIC TRANSDUCERS | US | 08/283,264 | 5,522,000    |                   |                              | PROVIDING OPTICAL COUPLING WITH SINGLE CRYSTAL SUBSTRATE MOUNTED ELECTRO-OPTIC TRANSDUCERS |
| ID0237  | DIRECT AMPLITUDE MODULATION OF LASERS  | US | 08/216,301 | 5,502,741    |                   |                              | DIRECT AMPLITUDE MODULATION OF LASERS  |
| ID0261  | IMPROVEMENTS IN CRYSTAL SUBSTRATE PROCESSING   | EP | 96301377.6 | 0 732 739    | Nat'l Phase Filed |                              | IMPROVEMENTS IN CRYSTAL SUBSTRATE PROCESSING   |
| ID0261  | IMPROVEMENTS IN CRYSTAL SUBSTRATE PROCESSING   | JP | 52013/96   |              |                   |                              | IMPROVEMENTS IN CRYSTAL SUBSTRATE PROCESSING   |
| ID0261  | IMPROVEMENTS IN CRYSTAL SUBSTRATE PROCESSING   | US | 08/612,314 | 5,933,707    |                   |                              | IMPROVEMENTS IN CRYSTAL SUBSTRATE PROCESSING   |
| ID0261  | IMPROVEMENTS IN CRYSTAL SUBSTRATE PROCESSING   | GB | 96301377.6 | 0 732 739    |                   |                              | IMPROVEMENTS IN CRYSTAL SUBSTRATE PROCESSING   |
| ID0261  | IMPROVEMENTS IN CRYSTAL SUBSTRATE PROCESSING   | DE | 96301377.6 | 696 18 264.5 |                   |                              | IMPROVEMENTS IN CRYSTAL SUBSTRATE PROCESSING   |

| Disc No | Disclosure title                                      | Cy | Serial No      | Patent No    | Sub Status        | All inventors with Dept No's | Application title                                     |
|---------|---|----|----------------|--------------|-------------------|------------------------------|---|
| ID0261  | IMPROVEMENTS IN CRYSTAL SUBSTRATE PROCESSING          | FR | 96301377.6     | 0 732 739    |                   |                              | IMPROVEMENTS IN CRYSTAL SUBSTRATE PROCESSING          |
| ID0287  | POLARISATION-INSENSITIVE OPTICAL MODULATORS           | DE | 195 28 165.9   |              |                   |                              | POLARISATION-INSENSITIVE OPTICAL MODULATORS           |
| ID0287  | POLARISATION-INSENSITIVE OPTICAL MODULATORS           | GB | 9515400.1      | 2 291 979    |                   |                              | POLARISATION-INSENSITIVE OPTICAL MODULATORS           |
| ID0287  | POLARISATION-INSENSITIVE OPTICAL MODULATORS           | FR | 9509417        | 2723485      |                   |                              | POLARISATION-INSENSITIVE OPTICAL MODULATORS           |
| ID0287  | POLARISATION-INSENSITIVE OPTICAL MODULATORS           | US | 08/510,752     | 6,275,321    |                   |                              | POLARISATION-INSENSITIVE OPTICAL MODULATORS           |
| ID0295  | OPTICALLY COUPLING OPTICAL FIBRES TO INJECTION LASERS | EP | 95308872.1     | 0 717 297    | Nat'l Phase Filed |                              | OPTICALLY COUPLING OPTICAL FIBRES TO INJECTION LASERS |
| ID0295  | OPTICALLY COUPLING OPTICAL FIBRES TO INJECTION LASERS | GB | 9425022.2      | 2 296 101    |                   |                              | OPTICALLY COUPLING OPTICAL FIBRES TO INJECTION LASERS |
| ID0295  | OPTICALLY COUPLING OPTICAL FIBRES TO INJECTION LASERS | US | 08/570,983     | 5,570,444    |                   |                              | OPTICALLY COUPLING OPTICAL FIBRES TO INJECTION LASERS |
| ID0295  | OPTICALLY COUPLING OPTICAL FIBRES TO INJECTION LASERS | DE | 95308872.1     | 695 26 563.6 |                   |                              | OPTICALLY COUPLING OPTICAL FIBRES TO INJECTION LASERS |
| ID0295  | OPTICALLY COUPLING OPTICAL FIBRES TO INJECTION LASERS | GB | 95308872.1     | 0 717 297    |                   |                              | OPTICALLY COUPLING OPTICAL FIBRES TO INJECTION LASERS |
| ID0295  | OPTICALLY COUPLING OPTICAL FIBRES TO INJECTION LASERS | FR | 95308872.1     | 0 717 297    |                   |                              | OPTICALLY COUPLING OPTICAL FIBRES TO INJECTION LASERS |
| ID0295  | OPTICALLY COUPLING OPTICAL FIBRES TO INJECTION LASERS | IT | 95308872.1     | 0 717 297    |                   |                              | OPTICALLY COUPLING OPTICAL FIBRES TO INJECTION LASERS |
| ID0311  | OPTICAL AMPLIFIER                                     | DE | 96308900.8     | 696 03 935.4 |                   |                              | OPTICAL AMPLIFIER                                     |
| ID0311  | OPTICAL AMPLIFIER                                     | EP | 96308900.8     | 0 779 689    | Nat'l Phase Filed |                              | OPTICAL AMPLIFIER                                     |
| ID0311  | OPTICAL AMPLIFIER                                     | IT | 96308900.8     | 0 779 689    |                   |                              | OPTICAL AMPLIFIER                                     |
| ID0311  | OPTICAL AMPLIFIER                                     | FR | 96308900.8     | 0 779 689    |                   |                              | OPTICAL AMPLIFIER                                     |
| ID0311  | OPTICAL AMPLIFIER                                     | GB | 9525766.3      | 2 308 222    |                   |                              | OPTICAL AMPLIFIER                                     |
| ID0311  | OPTICAL AMPLIFIER                                     | US | 08/760,175     | 5,872,649    |                   |                              | OPTICAL AMPLIFIER                                     |
| ID0348  | LASERS  | EP | PCT/GB96/01406 |              | Nat'l Phase Filed |                              | LASERS  |
| ID0384  | HERMETIC OPTICAL FIBRE FEED-THROUGH                   | GB | 9515004.1      | 2 303 467    |                   |                              | HERMETIC OPTICAL FIBRE FEED-THROUGH                   |
| ID0384  | HERMETIC OPTICAL FIBRE FEED-THROUGH                   | US | 08/684,128     | 5,664,043    |                   |                              | HERMETIC OPTICAL FIBRE FEED-THROUGH                   |

| ID No. | Disclosure title  | Co | Serial No.  | Patent No.   | Sub Status        | All inventors with Dept No. | Application title   |
|--------|---|----|-------------|--------------|-------------------|-----------------------------|---|
| ID0426 | ETALON ARRANGEMENT  | EP | 97305110.5  |              |                   |                             | ETALON ARRANGEMENT  |
| ID0426 | ETALON ARRANGEMENT  | JP | 179766/1997 |              |                   |                             | ETALON ARRANGEMENT  |
| ID0426 | ETALON ARRANGEMENT  | JP | 179766/1997 |              |                   |                             | ETALON ARRANGEMENT  |
| ID0426 | ETALON ARRANGEMENT  | CA | 2,203,845   | 2,203,845    |                   |                             | ETALON ARRANGEMENT  |
| ID0426 | ETALON ARRANGEMENT  | US | 08/848,337  | 5,828,689    |                   |                             | ETALON ARRANGEMENT  |
| ID0431 | SEMICONDUCTOR LASERS  | DE | 97901693.8  | 697 00 830.4 |                   |                             | SEMICONDUCTOR LASERS  |
| ID0431 | SEMICONDUCTOR LASERS  | EP | 97901693.8  | 0 876 696    | Nat'l Phase Filed |                             | SEMICONDUCTOR LASERS  |
| ID0431 | SEMICONDUCTOR LASERS  | FR | 97901693.8  | 0 876 696    |                   |                             | SEMICONDUCTOR LASERS  |
| ID0431 | SEMICONDUCTOR LASERS  | GB | 9601703.3   | 2 309 581    |                   |                             | SEMICONDUCTOR LASERS  |
| ID0431 | SEMICONDUCTOR LASERS  | GB | 97901693.8  | 0 876 696    |                   |                             | SEMICONDUCTOR LASERS  |
| ID0431 | SEMICONDUCTOR LASERS  | IT | 97901693.8  | 0 876 696    |                   |                             | SEMICONDUCTOR LASERS  |
| ID0431 | SEMICONDUCTOR LASERS  | JP | 526680/1997 |              |                   |                             | SEMICONDUCTOR LASERS  |
| ID0431 | SEMICONDUCTOR LASERS  | US | 09/091,684  | 6,058,125    |                   |                             | SEMICONDUCTOR LASERS  |
| ID0467 | CONTROLLED DISPENSE OF GLUE ONTO A SILICON V-GROOVE SUBSTRATE | EP | 97902473.4  | 0 879 435    | Nat'l Phase Filed |                             | SECURING AN OPTICAL FIBRE IN A V-GROOVE                       |
| ID0467 | CONTROLLED DISPENSE OF GLUE ONTO A SILICON V-GROOVE SUBSTRATE | GB | 9602564.8   | 2 310 052    |                   |                             | CONTROLLED DISPENSE OF GLUE ONTO A SILICON V-GROOVE SUBSTRATE |
| ID0467 | CONTROLLED DISPENSE OF GLUE ONTO A SILICON V-GROOVE SUBSTRATE | JP | 528272/1997 |              |                   |                             | CONTROLLED DISPENSE OF GLUE ONTO A SILICON V-GROOVE SUBSTRATE |
| ID0467 | CONTROLLED DISPENSE OF GLUE ONTO A SILICON V-GROOVE SUBSTRATE | US | 08/952,676  | 5,985,086    |                   |                             | CONTROLLED DISPENSE OF GLUE ONTO A SILICON V-GROOVE SUBSTRATE |
| ID0467 | CONTROLLED DISPENSE OF GLUE ONTO A SILICON V-GROOVE SUBSTRATE | DE | 97902473.4  | 697 10 047.2 |                   |                             | SECURING AN OPTICAL FIBRE IN A V-GROOVE                       |
| ID0467 | CONTROLLED DISPENSE OF GLUE ONTO A SILICON V-GROOVE SUBSTRATE | IT | 97902473.4  | 0 879 435    |                   |                             | SECURING AN OPTICAL FIBRE IN A V-GROOVE                       |

| Disc No. | Disclosure Title  | Ctry | Serial No.     | Patent No. | Sub Status        | All Inventors with Dept. No's | Applicable Title  |
|----------|---|------|----------------|------------|-------------------|-------------------------------|---|
| ID0467   | CONTROLLED DISPENSE OF GLUE ONTO A SILICON V-GROOVE SUBSTRATE | FR   | 97902473.4     | 0 879 435  |                   |                               | SECURING AN OPTICAL FIBRE IN A V-GROOVE                       |
| ID0467   | CONTROLLED DISPENSE OF GLUE ONTO A SILICON V-GROOVE SUBSTRATE | WO   | PCT/GB97/00320 |            | Nat'l Phase Filed |                               | CONTROLLED DISPENSE OF GLUE ONTO A SILICON V-GROOVE SUBSTRATE |
| ID0519   | SEMICONDUCTOR PHOTODETECTOR PACKAGING                         | JP   | 507707/1998    |            |                   |                               | SEMICONDUCTOR PHOTODETECTOR PACKAGING                         |
| ID0519   | SEMICONDUCTOR PHOTODETECTOR PACKAGING                         | US   | 09/214,634     | 6,188,118  |                   |                               | SEMICONDUCTOR PHOTODETECTOR PACKAGING                         |
| ID0519   | SEMICONDUCTOR PHOTODETECTOR PACKAGING                         | CA   | 2,258,178      |            |                   |                               | SEMICONDUCTOR PHOTODETECTOR PACKAGING                         |
| ID0519   | SEMICONDUCTOR PHOTODETECTOR PACKAGING                         | EP   | 97933796.1     |            |                   |                               | SEMICONDUCTOR PHOTODETECTOR PACKAGING                         |
| ID0519   | SEMICONDUCTOR PHOTODETECTOR PACKAGING                         | WO   | PCT/GB97/02053 |            | Nat'l Phase Filed |                               | SEMICONDUCTOR PHOTODETECTOR PACKAGING                         |
| ID0651   | DIRECT AMPLITUDE MODULATION OF LASERS                         | EP   | 98303274.9     |            |                   |                               | DIRECT AMPLITUDE MODULATION OF LASERS                         |
| ID0651   | DIRECT AMPLITUDE MODULATION OF LASERS                         | US   | 08/865,760     | 5,901,164  |                   |                               | DIRECT AMPLITUDE MODULATION OF LASERS                         |
| ID0651   | DIRECT AMPLITUDE MODULATION OF LASERS                         | CA   | 2,235,179      |            |                   |                               | DIRECT AMPLITUDE MODULATION OF LASERS                         |
| ID0651   | DIRECT AMPLITUDE MODULATION OF LASERS                         | JP   | 146072/1998    |            |                   |                               | DIRECT AMPLITUDE MODULATION OF LASERS                         |
| ID0687   | OPTICAL TRANSMITTER OUTPUT MONITORING TAP                     | US   | 08/984,894     | 6,124,956  |                   |                               | OPTICAL TRANSMITTER OUTPUT MONITORING TAP                     |
| ID0691   | BONDING RIDGE STRUCTURE LASER DIODES TO SUBSTRATES            | US   | 09/072,810     | 6,075,800  |                   |                               | BONDING RIDGE STRUCTURE LASER DIODES TO SUBSTRATES            |
| ID0764   | A REMOVABLY COATED OPTICAL FIBRE                              | US   | 09/374,807     | 6,351,589  |                   |                               | REMOVABLY COATED OPTICAL FIBRE                                |
| ID0803   | ELECTRICALLY CONTROLLABLE OPTICAL ATTENUATOR                  | EP   | 98309206.5     |            |                   |                               | ELECTRICALLY CONTROLLABLE OPTICAL ATTENUATOR                  |
| ID0803   | ELECTRICALLY CONTROLLABLE OPTICAL ATTENUATOR                  | JP   | 365470/1998    |            |                   |                               | ELECTRICALLY CONTROLLABLE OPTICAL ATTENUATOR                  |
| ID0803   | ELECTRICALLY CONTROLLABLE OPTICAL ATTENUATOR                  | US   | 08/997,752     | 5,956,437  |                   |                               | ELECTRICALLY CONTROLLABLE OPTICAL ATTENUATOR                  |
| ID0803   | ELECTRICALLY CONTROLLABLE OPTICAL ATTENUATOR                  | CA   | 2,254,148      |            |                   |                               | ELECTRICALLY CONTROLLABLE OPTICAL ATTENUATOR                  |

| Disc No. | Disclosure title                               | Ctry | Serial No.  | Patent No.  | Sub Status | All inventors with Dept No's | Application title                              |
|----------|--|------|-------------|-------------|------------|------------------------------|--|
| ID0908   | SEMICONDUCTOR OPTO ELECTRONIC DEVICE PACKAGING | US   | 09/070,899  | 6,407,438   |            |                              | SEMICONDUCTOR OPTO-ELECTRONIC DEVICE PACKAGING |
| ID1107   | INTEGRATED OPTICAL MACH ZEHNDER STRUCTURES     | EP   | 00301124.4  |             |            |                              | INTEGRATED OPTICAL MACH ZEHNDER STRUCTURES     |
| ID1107   | INTEGRATED OPTICAL MACH ZEHNDER STRUCTURES     | US   | 09/280,360  | 6,240,221   |            |                              | INTEGRATED OPTICAL MACH ZEHNDER STRUCTURES     |
| ID1107   | INTEGRATED OPTICAL MACH ZEHNDER STRUCTURES     | CA   | 2,299,794   |             |            |                              | INTEGRATED OPTICAL MACH ZEHNDER STRUCTURES     |
| ID8512   | INJECTION LASER PACKAGES                       | US   | 06/514,066  | 4,615,031   |            |                              | INJECTION LASER PACKAGES                       |
| ID8512   | INJECTION LASER PACKAGES                       | GB   | 8317959     | 2 124 402   |            |                              | INJECTION LASER PACKAGES                       |
| ID8850   | OPTICAL AMPLIFIERS                             | US   | 06/888,274  | 4,720,684   |            |                              | OPTICAL AMPLIFIERS                             |
| ID8850   | OPTICAL AMPLIFIERS                             | CA   | 469,211     | 1,245,328   |            |                              | OPTICAL AMPLIFIERS                             |
| ID8852   | MANUFACTURING OPTICAL FIBRE                    | US   | 06/736,327  | 4,608,276   |            |                              | MANUFACTURING OPTICAL FIBRE                    |
| ID8852   | MANUFACTURING OPTICAL FIBRE                    | CA   | 482,229     | 1,261,632   |            |                              | MANUFACTURING OPTICAL FIBRE                    |
| ID8960   | OPTICAL FIBRE MANUFACTURE                      | US   | 06/940,232  | 4,735,648   |            |                              | OPTICAL FIBRE MANUFACTURE                      |
| ID9003   | COATING OPTICAL FIBRES                         | DE   | 85306977.1  | 356 83 25.2 |            |                              | COATING OPTICAL FIBRES                         |
| ID9003   | COATING OPTICAL FIBRES                         | JP   | 222908/85   | 2029150     |            |                              | COATING OPTICAL FIBRES                         |
| ID9003   | COATING OPTICAL FIBRES                         | US   | 06/782,930  | 4,631,078   |            |                              | COATING OPTICAL FIBRES                         |
| ID9003   | COATING OPTICAL FIBRES                         | GB   | 85306977.1  | 0 178 107   |            |                              | COATING OPTICAL FIBRES                         |
| ID9003   | COATING OPTICAL FIBRES                         | CA   | 492,574     | 1,226,411   |            |                              | COATING OPTICAL FIBRES                         |
| ID9186   | LASER MANUFACTURE                              | US   | 07/296,946  | 4,949,352   |            |                              | LASER MANUFACTURE                              |
| ID9186   | LASER MANUFACTURE                              | GB   | 8512321     | 2 175 442   |            |                              | LASER MANUFACTURE                              |
| ID9209   | TUBE FURNACE                                   | US   | 06/858,617  | 4,748,307   |            |                              | TUBE FURNACE                                   |
| ID9312   | OPTICAL FIBRE MANUFACTURE                      | US   | 06/896,518  | 4,793,840   |            |                              | OPTICAL FIBRE MANUFACTURE                      |
| ID9312   | OPTICAL FIBRE MANUFACTURE                      | GB   | 8520945     | 2 179 339   |            |                              | OPTICAL FIBRE MANUFACTURE                      |
| ID9315   | OPTICAL FIBRE CABLE HAVING SLOTTED CORE        | DE   | 365 02 56.1 | 365 02 56.1 |            |                              | OPTICAL FIBRE CABLE HAVING SLOTTED CORE        |
| ID9315   | OPTICAL FIBRE CABLE HAVING SLOTTED CORE        | FR   | 86306868.0  | 0 216 548   |            |                              | OPTICAL FIBRE CABLE HAVING SLOTTED CORE        |

| Disc No. | Disclosure title                                | Cty | Serial No. | Patent No.  | Sub-Status | Applicant's name<br>Dept. No.'s | Application title                               |
|----------|---|-----|------------|-------------|------------|---------------------------------|---|
| ID9315   | OPTICAL FIBRE CABLE HAVING SLOTTED CORE         | GB  | 86306868.0 | 0 216 548   |            |                                 | OPTICAL FIBRE CABLE HAVING SLOTTED CORE         |
| ID9315   | OPTICAL FIBRE CABLE HAVING SLOTTED CORE         | NZ  | 217514     | 217514      |            |                                 | OPTICAL FIBRE CABLE HAVING SLOTTED CORE         |
| ID9315   | OPTICAL FIBRE CABLE HAVING SLOTTED CORE         | US  | 07/636,902 | RE34,516    |            |                                 | OPTICAL FIBRE CABLE HAVING SLOTTED CORE         |
| ID9379   | OPTICAL FIBRE INTEGRATED OPTICAL DEVICE COUPLER | US  | 06/934,440 | 4,772,086   |            |                                 | OPTICAL FIBRE INTEGRATED OPTICAL DEVICE COUPLER |
| ID9379   | OPTICAL FIBRE INTEGRATED OPTICAL DEVICE COUPLER | GB  | 8530797    | 2 184 255   |            |                                 | OPTICAL FIBRE INTEGRATED OPTICAL DEVICE COUPLER |
| ID9495   | LASER ARRAY                                     | DE  | 87302417.8 | 376 44 10.6 |            |                                 | LASER ARRAY                                     |
| ID9495   | LASER ARRAY                                     | JP  | 129591/87  | 2511969     |            |                                 | LASER ARRAY                                     |
| ID9495   | LASER ARRAY                                     | US  | 07/032,779 | 4,760,580   |            |                                 | LASER ARRAY                                     |
| ID9552   | OPTICAL FIBRE CABLES                            | DE  | 3883556.8  | 3883556.8   |            |                                 | OPTICAL FIBRE CABLES                            |
| ID9552   | OPTICAL FIBRE CABLES                            | FR  | 88300817.9 | 0 278 648   |            |                                 | OPTICAL FIBRE CABLES                            |
| ID9552   | OPTICAL FIBRE CABLES                            | GB  | 8703255    | 2 201 008   |            |                                 | OPTICAL FIBRE CABLES                            |
| ID9552   | OPTICAL FIBRE CABLES                            | US  | 07/154,866 | 4,830,459   |            |                                 | OPTICAL FIBRE CABLES                            |
| ID9604   | FIBRE TAILED OPTO-ELECTRONIC TRANSDUCER         | DE  | 88306994.0 | 388 13 01.7 |            |                                 | FIBRE TAILED OPTO-ELECTRONIC TRANSDUCER         |
| ID9604   | FIBRE TAILED OPTO-ELECTRONIC TRANSDUCER         | FR  | 88306994.0 | 0 304 182   |            |                                 | FIBRE TAILED OPTO-ELECTRONIC TRANSDUCER         |
| ID9604   | FIBRE TAILED OPTO-ELECTRONIC TRANSDUCER         | GB  | 8719590    | 2 208 944   |            |                                 | FIBRE TAILED OPTO-ELECTRONIC TRANSDUCER         |
| ID9604   | FIBRE TAILED OPTO-ELECTRONIC TRANSDUCER         | GB  | 88306994.0 | 0 304 182   |            |                                 | FIBRE TAILED OPTO-ELECTRONIC TRANSDUCER         |
| ID9604   | FIBRE TAILED OPTO-ELECTRONIC TRANSDUCER         | NL  | 88306994.0 | 0 304 182   |            |                                 | FIBRE TAILED OPTO-ELECTRONIC TRANSDUCER         |
| ID9604   | FIBRE TAILED OPTO-ELECTRONIC TRANSDUCER         | SE  | 88306994.0 | 0 304 182   |            |                                 | FIBRE TAILED OPTO-ELECTRONIC TRANSDUCER         |
| ID9604   | FIBRE TAILED OPTO-ELECTRONIC TRANSDUCER         | US  | 07/230,057 | 4,988,159   |            |                                 | FIBRE TAILED OPTO-ELECTRONIC TRANSDUCER         |
| ID9617   | EDGE EMITTING LIGHT EMISSIVE DIODE              | US  | 07/239,403 | 4,937,638   |            |                                 | EDGE EMITTING LIGHT EMISSIVE DIODE              |
| ID9661   | WAVEGUIDE TO OPTO-ELECTRONIC TRANSDUCER         | GB  | 8823873.8  | 2 213 957   |            |                                 | WAVEGUIDE TO OPTO-ELECTRONIC TRANSDUCER         |



| ID No. | Disclosure title  | Ct | Serial No.   | Patent No.   | Sub-Status | All Inventors with Ident. No.s | Application title  |
|--------|---|----|--------------|--------------|------------|--------------------------------|--|
| ID9715 | CONTACTLESS MEASUREMENT OF THE ELECTRICAL RESISTANCE PER UNIT LENGTH... | DE | 690 20 050.1 | 690 20 050.1 |            |                                | CONTACTLESS MEASUREMENT OF THE ELECTRICAL RESISTANCE PERUNIT LENGTH... |
| ID9715 | CONTACTLESS MEASUREMENT OF THE ELECTRICAL RESISTANCE PER UNIT LENGTH... | FR | 90305474.0   | 0 400 853    |            |                                | CONTACTLESS MEASUREMENT OF THE ELECTRICAL RESISTANCE PERUNIT LENGTH... |
| ID9715 | CONTACTLESS MEASUREMENT OF THE ELECTRICAL RESISTANCE PER UNIT LENGTH... | GB | 8912458.0    | 2 232 260    |            |                                | CONTACTLESS MEASUREMENT OF THE ELECTRICAL RESISTANCE PERUNIT LENGTH... |
| ID9715 | CONTACTLESS MEASUREMENT OF THE ELECTRICAL RESISTANCE PER UNIT LENGTH... | JP | 141220/1990  | 2991238      |            |                                | CONTACTLESS MEASUREMENT OF THE ELECTRICAL RESISTANCE PERUNIT LENGTH... |
| ID9715 | CONTACTLESS MEASUREMENT OF THE ELECTRICAL RESISTANCE PER UNIT LENGTH... | US | 07/531,791   | 5,083,090    |            |                                | CONTACTLESS MEASUREMENT OF THE ELECTRICAL RESISTANCE PERUNIT LENGTH... |
| ID9716 | CARB ON COATING OF OPTICAL FIBRES                                       | DE | 690 10 282.8 | 0 400 938    |            |                                | CARB ON COATING OF OPTICAL FIBRES                                      |
| ID9716 | CARB ON COATING OF OPTICAL FIBRES                                       | FR | 90305776.8   | 0 400 938    |            |                                | CARB ON COATING OF OPTICAL FIBRES                                      |
| ID9716 | CARB ON COATING OF OPTICAL FIBRES                                       | GB | 9011933.0    | 2 236 331    |            |                                | CARB ON COATING OF OPTICAL FIBRES                                      |
| ID9716 | CARB ON COATING OF OPTICAL FIBRES                                       | JP | 141221/1990  | 2866707      |            |                                | CARB ON COATING OF OPTICAL FIBRES                                      |
| ID9716 | CARB ON COATING OF OPTICAL FIBRES                                       | US | 07/531,859   | 5,062,687    |            |                                | CARB ON COATING OF OPTICAL FIBRES                                      |
| ID9731 | BONDING A SEMICONDUCTOR TO A SUBSTRATE                                  | GB | 8818522.8    | 2 221 570    |            |                                | BONDING A SEMICONDUCTOR TO A SUBSTRATE                                 |
| ID9742 | OPTICAL FILTERS   | GB | 8823078.4    | 2 223 324    |            |                                | OPTICAL FILTERS  |
| ID9750 | DIFFRACTION GRATING   | DE | 68928711.9   | 0365125      |            |                                | DIFFRACTION GRATING  |
| ID9750 | DIFFRACTION GRATING   | FR | 89308702.3   | 0 365 125    |            |                                | DIFFRACTION GRATING  |
| ID9750 | DIFFRACTION GRATING   | GB | 8821898.7    | 2 222 891    |            |                                | DIFFRACTION GRATING  |
| ID9750 | DIFFRACTION GRATING   | IT | 22874/BE/98  | 0 365 125    |            |                                | DIFFRACTION GRATING  |
| ID9750 | DIFFRACTION GRATING   | JP | 239789/1989  | 2889608      |            |                                | DIFFRACTION GRATING  |
| ID9750 | DIFFRACTION GRATING   | JP | 239789/1989  | 2889608      |            |                                | DIFFRACTION GRATING  |
| ID9750 | DIFFRACTION GRATING   | JP | 239789/1989  | 2889608      |            |                                | DIFFRACTION GRATING  |
| ID9750 | DIFFRACTION GRATING   | US | 07/579,081   | 5,029,981    |            |                                | DIFFRACTION GRATING  |

| Disc No. | Disclosure title                                 | City | Serial No.  | Patent No.   | Sub Status | All inventors with Dep. No.s | Application title                                |
|----------|--|------|-------------|--------------|------------|------------------------------|--|
| ID9750   | DIFFRACTION GRATING                              | JP   | 239789/1989 | 2889608      |            |                              | DIFFRACTION GRATING                              |
| ID9750   | DIFFRACTION GRATING                              | JP   | 239789/1989 | 2889608      |            |                              | DIFFRACTION GRATING                              |
| ID9750   | DIFFRACTION GRATING                              | JP   | 239789/1989 | 2889608      |            |                              | DIFFRACTION GRATING                              |
| ID9750   | DIFFRACTION GRATING                              | NL   | 89308702.3  | 0 365 125    |            |                              | DIFFRACTION GRATING                              |
| ID9752   | VAPOUR PHASE PROCESSING                          | GB   | 8823233.5   | 2 223 509    |            |                              | VAPOUR PHASE PROCESSING                          |
| ID9763   | MULTICHANNEL CAVITY LASER                        | DE   | 89312024.6  | 689 18 238.4 |            |                              | MULTICHANNEL CAVITY LASER                        |
| ID9763   | MULTICHANNEL CAVITY LASER                        | FR   | 89312024.6  | 0 370 739    |            |                              | MULTICHANNEL CAVITY LASER                        |
| ID9763   | MULTICHANNEL CAVITY LASER                        | GB   | 8827385.9   | 2 225 482    |            |                              | MULTICHANNEL CAVITY LASER                        |
| ID9763   | MULTICHANNEL CAVITY LASER                        | US   | 07/625,818  | 5,115,444    |            |                              | MULTICHANNEL CAVITY LASER                        |
| ID9774   | INTEGRATED OPTICS ASYMMETRIC Y-COUPLER           | GB   | 8902391.5   | 2 227 854    |            |                              | INTEGRATED OPTICS ASYMMETRIC Y-COUPLER           |
| ID9806   | OPTICAL FIBRE CABLE                              | US   | 07/544,678  | 5,082,380    |            |                              | OPTICAL FIBRE CABLE                              |
| ID9837   | AERIAL OPTICAL FIBRE CABLE                       | US   | 07/596,381  | 5,050,960    |            |                              | AERIAL OPTICAL FIBRE CABLE                       |
| ID9856   | SEMICONDUCTOR OPTICAL SOURCE                     | GB   | 8924725.8   | 2 237 654    |            |                              | SEMICONDUCTOR OPTICAL SOURCE                     |
| ID9870   | RING LASER                                       | FR   | 90309362.3  | 0 419 059    |            |                              | RING LASER                                       |
| ID9870   | RING LASER                                       | GB   | 8921295.5   | 2 236 426    |            |                              | RING LASER                                       |
| ID9870   | RING LASER                                       | DE   | 69003780.5  | 0 419 059    |            |                              | RING LASER                                       |
| ID9870   | RING LASER                                       | JP   | 249922/1990 | 3004336      |            |                              | RING LASER                                       |
| ID9870   | RING LASER                                       | US   | 07/583,590  | 5,056,096    |            |                              | RING LASER                                       |
| MO0068   | OPTICAL WAVEGUIDE AND METHOD FOR ITS MANUFACTURE | FR   | 90304772.8  | 0401971      |            |                              | OPTICAL WAVEGUIDE AND METHOD FOR ITS MANUFACTURE |
| MO0068   | OPTICAL WAVEGUIDE AND METHOD FOR ITS MANUFACTURE | CA   | 2,013,849   | 2,013,849    |            |                              | OPTICAL WAVEGUIDE AND METHOD FOR ITS MANUFACTURE |
| MO0068   | OPTICAL WAVEGUIDE AND METHOD FOR ITS MANUFACTURE | DE   | 90304772.8  | 0401971      |            |                              | OPTICAL WAVEGUIDE AND METHOD FOR ITS MANUFACTURE |
| MO0068   | OPTICAL WAVEGUIDE AND METHOD FOR ITS MANUFACTURE | EP   | 90304772.8  | 0401971      |            |                              | OPTICAL WAVEGUIDE AND METHOD FOR ITS MANUFACTURE |
| MO0068   | OPTICAL WAVEGUIDE AND METHOD FOR ITS MANUFACTURE | US   | 07/363,006  | 4,934,774    |            |                              | OPTICAL WAVEGUIDE AND METHOD FOR ITS MANUFACTURE |

| Disc No | Disclosure Title  | Cy | Serial No  | Patent No | Sub Status | All Inventions with Date No | Application Title  |
|---------|---|----|------------|-----------|------------|-----------------------------|--|
| MO0068  | OPTICAL WAVEGUIDE AND METHOD FOR ITS MANUFACTURE  | US | 07/501,990 | 5,035,916 |            |                             | OPTICAL WAVEGUIDE AND METHOD FOR ITS MANUFACTURE   |
| MO0068  | OPTICAL WAVEGUIDE AND METHOD FOR ITS MANUFACTURE  | GB | 90304772.8 | 0401971   |            |                             | OPTICAL WAVEGUIDE AND METHOD FOR ITS MANUFACTURE   |
| MO0166  | A METHOD FOR LOW LOSS INSERTION OF AN OPTICAL SIGNAL FROM AN OPTICAL FIBER TO A WAVEGUIDE INTEGRATED ONTO A SEMICONDUCTOR WAFER | US | 08/710,775 | 5,703,980 |            |                             | A METHOD FOR LOW LOSS INSERTION OF AN OPTICAL SIGNAL FROM A OPTICAL FIBER TO A WAVEGUIDE INTEGRATED ONTO A SEMICONDUCTOR WAFER |
| MO0167  | A METHOD FOR THE HYBRID INTEGRATION OF DISCRETE ELEMENTS ON A SEMICONDUCTOR SUBSTRATE   | CA | 2,209,548  |           |            |                             | A METHOD FOR THE HYBRID INTEGRATION OF DISCRETE ELEMENTS ON A SEMICONDUCTOR SUBSTRATE  |
| MO0167  | A METHOD FOR THE HYBRID INTEGRATION OF DISCRETE ELEMENTS ON A SEMICONDUCTOR SUBSTRATE   | EP | 97111629.8 |           |            |                             | A METHOD FOR THE HYBRID INTEGRATION OF DISCRETE ELEMENTS ON A SEMICONDUCTOR SUBSTRATE  |
| MO0167  | A METHOD FOR THE HYBRID INTEGRATION OF DISCRETE ELEMENTS ON A SEMICONDUCTOR SUBSTRATE   | JP | 9-185588   |           |            |                             | A METHOD FOR THE HYBRID INTEGRATION OF DISCRETE ELEMENTS ON A SEMICONDUCTOR SUBSTRATE  |
| MO0167  | A METHOD FOR THE HYBRID INTEGRATION OF DISCRETE ELEMENTS ON A SEMICONDUCTOR SUBSTRATE   | US | 08/677,922 | 5,793,913 |            |                             | A METHOD FOR THE HYBRID INTEGRATION OF DISCRETE ELEMENTS ON A SEMICONDUCTOR SUBSTRATE  |
| MO0167  | A METHOD FOR THE HYBRID INTEGRATION OF DISCRETE ELEMENTS ON A SEMICONDUCTOR SUBSTRATE   | US | 09/079,480 | 6,158,901 |            |                             | A METHOD FOR THE HYBRID INTEGRATION OF DISCRETE ELEMENTS ON A SEMICONDUCTOR SUBSTRATE  |
| MO0167  | A METHOD FOR THE HYBRID INTEGRATION OF DISCRETE ELEMENTS ON A SEMICONDUCTOR SUBSTRATE   | US | 09/584,792 | 6,391,214 |            |                             | METHOD FOR THE HYBRID INTEGRATION OF DISCRETE ELEMENTS ON A SEMICONDUCTOR SUBSTRATE  |
| RE1009  | FIBER OPTIC COUPLER   | CA | 476,580    | 1,258,787 |            |                             | FIBER OPTIC COUPLER  |
| RE1009  | FIBER OPTIC COUPLER   | US | 07/442,878 | 4,950,046 |            |                             | FIBER OPTIC COUPLER  |
| RE1037  | OPTICAL SIGNAL MODULATORS   | CA | 507,411    | 1,257,923 |            |                             | OPTICAL SIGNAL MODULATORS  |
| RE1037  | OPTICAL SIGNAL MODULATORS   | US | 06/856,887 | 4,730,171 |            |                             | OPTICAL SIGNAL MODULATORS  |
| RO1624  | HERMETIC OPTICAL ATTENUATOR   | US | 06/233,500 | 4,695,125 |            |                             | HERMETIC OPTICAL ATTENUATOR  |

| Disc No | Disclosure Title  | Ctry | Serial No  | Patent No | Subj Status | All Inventors with Dept No's | Application Title   |
|---------|---|------|------------|-----------|-------------|------------------------------|---|
| RO1807  | DIFFUSION EQUIPMENT   | CA   | 416,834    | 1,204,986 |             |                              | DIFFUSION EQUIPMENT   |
| RO1807  | DIFFUSION EQUIPMENT   | US   | 06/446,441 | 4,493,287 |             |                              | DIFFUSION EQUIPMENT   |
| RO1809  | A PLANAR NARROW-STRIPE LASER WITH IMPROVED CHARGE CARRIER CONFINEMENT | US   | 06/448,383 | 4,530,099 |             |                              | A PLANAR NARROW-STRIPE LASER WITH IMPROVED CHARGE CARRIER CONFINEMENT |
| RO1882  | MELT DISPENSING LIQUID PHASE EPITAXY BOAT                             | CA   | 448,169    | 1,201,220 |             |                              | MELT DISPENSING LIQUID PHASE EPITAXY BOAT                             |
| RO1882  | MELT DISPENSING LIQUID PHASE EPITAXY BOAT                             | US   | 06/583,985 | 4,574,730 |             |                              | MELT DISPENSING LIQUID PHASE EPITAXY BOAT                             |
| RO1903  | METHOD FOR SCREENING LASER DIODES                                     | CA   | 447,814    | 1,196,080 |             |                              | METHOD FOR SCREENING LASER DIODES                                     |
| RO1903  | METHOD FOR SCREENING LASER DIODES                                     | US   | 06/582,956 | 4,489,477 |             |                              | METHOD FOR SCREENING LASER DIODES                                     |
| RO1944  | PHASED LINEAR LASER ARRAY   | CA   | 465,981    | 1,238,707 |             |                              | PHASED LINEAR LASER ARRAY   |
| RO1944  | PHASED LINEAR LASER ARRAY   | US   | 06/663,424 | 4,661,962 |             |                              | PHASED LINEAR LASER ARRAY   |
| RO1961  | ZINC DIFFUSION INTO INDIUM PHOSPHIDE                                  | CA   | 495,084    | 1,290,656 |             |                              | ZINC DIFFUSION INTO INDIUM PHOSPHIDE                                  |
| RO1961  | ZINC DIFFUSION INTO INDIUM PHOSPHIDE                                  | US   | 07/243,138 | 4,889,830 |             |                              | ZINC DIFFUSION INTO INDIUM PHOSPHIDE                                  |
| RO1987  | DOUBLE HETEROSTRUCTURE SURFACE EMITTING LASER STRUCTURE               | CA   | 483,077    | 1,238,973 |             |                              | DOUBLE HETEROSTRUCTURE SURFACE EMITTING LASER STRUCTURE               |
| RO1987  | DOUBLE HETEROSTRUCTURE SURFACE EMITTING LASER STRUCTURE               | US   | 06/673,644 | 4,660,207 |             |                              | DOUBLE HETEROSTRUCTURE SURFACE EMITTING LASER STRUCTURE               |
| RO1994  | A SURFACE EMITTING LASER  | CA   | 474,029    | 1,238,971 |             |                              | A SURFACE EMITTING LASER  |
| RO1994  | A SURFACE EMITTING LASER  | US   | 06/701,839 | 4,675,877 |             |                              | A SURFACE EMITTING LASER  |
| RO2005  | A BRAGG DISTRIBUTED FEEDBACK SURFACE EMITTING LASER                   | US   | 06/701,707 | 4,675,876 |             |                              | A BRAGG DISTRIBUTED FEEDBACK SURFACE EMITTING LASER                   |
| RO2005  | A BRAGG DISTRIBUTED FEEDBACK SURFACE EMITTING LASER                   | CA   | 474,030    | 1,238,972 |             |                              | A BRAGG DISTRIBUTED FEEDBACK SURFACE EMITTING LASER                   |
| RO2268  | AN INTERRUPTED LIQUID PHASE EPITAXY TECHNIQUE                         | CA   | 562,885    | 1,293,179 |             |                              | AN INTERRUPTED LIQUID PHASE EPITAXY TECHNIQUE                         |
| RO2268  | AN INTERRUPTED LIQUID PHASE EPITAXY TECHNIQUE                         | US   | 07/179,834 | 4,859,628 |             |                              | AN INTERRUPTED LIQUID PHASE EPITAXY TECHNIQUE                         |

| Disc No | Disclosure title  | Cl | Serial No  | Patent No    | Sub Status | All inventors with Dept No's | Application title   |
|---------|---|----|------------|--------------|------------|------------------------------|---|
| RO2314  | MONOLITHIC INTEGRATION OF OPTOELECTRONIC AND ELECTRONIC DEVICES     | US | 07/176,120 | 4,847,665    |            |                              | MONOLITHIC INTEGRATION OF OPTOELECTRONIC AND ELECTRONIC DEVICES     |
| RO2349  | GROWTH OF SEMI-INSULATING INP BY LIQUID PHASE EPITAXY               | US | 07/201,155 | 4,849,373    |            |                              | GROWTH OF SEMI-INSULATING INP BY LIQUID PHASE EPITAXY               |
| RO2349  | GROWTH OF SEMI-INSULATING INP BY LIQUID PHASE EPITAXY               | CA | 568,369    | 1,313,107    |            |                              | GROWTH OF SEMI-INSULATING INP BY LIQUID PHASE EPITAXY               |
| RO2461  | OPTOELECTRONIC APPARATUS AND METHOD FOR ITS FABRICATION             | US | 07/369,883 | 4,969,712    |            |                              | OPTOELECTRONIC APPARATUS AND METHOD FOR ITS FABRICATION             |
| RO2468  | PACKAGING METHOD AND PACKAGE FOR EDGE COUPLED OPTOELECTRONIC DEVICE | CA | 2,018,900  | 2,018,900    |            |                              | PACKAGING METHOD AND PACKAGE FOR EDGE COUPLED OPTOELECTRONIC DEVICE |
| RO2468  | PACKAGING METHOD AND PACKAGE FOR EDGE COUPLED OPTOELECTRONIC DEVICE | US | 07/385,599 | 4,953,006    |            |                              | PACKAGING METHOD AND PACKAGE FOR EDGE COUPLED OPTOELECTRONIC DEVICE |
| RO2564  | LASER DIODE STRUCTURE   | FR | 91908207.3 | 0 530 212    |            |                              | LASER DIODE STRUCTURE   |
| RO2564  | LASER DIODE STRUCTURE   | DE | 91908207.3 | 691 07 845.9 |            |                              | LASER DIODE STRUCTURE   |
| RO2564  | LASER DIODE STRUCTURE   | GB | 91908207.3 | 0 530 212    |            |                              | LASER DIODE STRUCTURE   |
| RO2564  | LASER DIODE STRUCTURE   | US | 07/522,015 | 4,989,214    |            |                              | LASER DIODE STRUCTURE   |
| RO2579  | MULTICHANNEL FIBER OPTIC TRANSMITTER RECEIVER                       | US | 07/582,464 | 5,050,953    |            |                              | MULTICHANNEL FIBER OPTIC TRANSMITTER RECEIVER                       |
| RO2579  | MULTICHANNEL FIBER OPTIC TRANSMITTER RECEIVER                       | GB | 91185124   | 2 248 968    |            |                              | MULTICHANNEL FIBER OPTIC TRANSMITTER RECEIVER                       |
| RO2714  | APPARATUS FOR USE WITH ANALYTICAL MEASURING INSTRUMENTS             | US | 07/996,411 | 5,350,923    |            |                              | APPARATUS FOR USE WITH ANALYTICAL MEASURING INSTRUMENTS             |
| RO2785  | OPTICAL PHASE MODULATING DEVICES AND METHODS FOR THEIR OPERATION    | DE | 94915483.5 | 694 08 144.2 |            |                              | OPTICAL PHASE MODULATING DEVICES AND METHODS FOR THEIR OPERATION    |
| RO2785  | OPTICAL PHASE MODULATING DEVICES AND METHODS FOR THEIR OPERATION    | FR | 94915483.5 | 0 708 930    |            |                              | OPTICAL PHASE MODULATING DEVICES AND METHODS FOR THEIR OPERATION    |

| Disc No. | Disclosure Title   | Ctry | Serial No.  | Patent No. | Sub Status | All Inventions with Dept No. | Application Title  |
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| RO2785   | OPTICAL PHASE MODULATING DEVICES AND METHODS FOR THEIR OPERATION   | GB   | 94915483.5  | 0 708 930  |            |                              | OPTICAL PHASE MODULATING DEVICES AND METHODS FOR THEIR OPERATION   |
| RO2785   | OPTICAL PHASE MODULATING DEVICES AND METHODS FOR THEIR OPERATION   | JP   | 7-504252-95 | 2691638    |            |                              | OPTICAL PHASE MODULATING DEVICES AND METHODS FOR THEIR OPERATION   |
| RO2785   | OPTICAL PHASE MODULATING DEVICES AND METHODS FOR THEIR OPERATION   | US   | 08/091,708  | 5,363,457  |            |                              | OPTICAL PHASE MODULATING DEVICES AND METHODS FOR THEIR OPERATION   |
| RO2788   | METHOD OF REDUCING THE THERMALLY INDUCED SHIFT IN THE EMISSION WAVELENGTH OF LASER DIODES                                    | US   | 08/118,273  | 5,345,459  |            |                              | METHOD OF REDUCING THE THERMALLY INDUCED SHIFT IN THE EMISSION WAVELENGTH OF LASER DIODES                                    |
| RO2799   | GAIN COUPLED DFB LASER WITH INDEX COUPLING COMPENSATION  | US   | 08/170,074  | 5,452,318  |            |                              | GAIN COUPLED DFB LASER WITH INDEX COUPLING COMPENSATION  |
| RO2809   | METHODS AND ASSEMBLIES FOR PACKAGING ELECTRONIC DEVICES AND FOR COUPLING OPTICAL FIBERS TO THE PACKAGED DEVICES              | US   | 08/158,545  | 5,586,207  |            |                              | METHODS AND ASSEMBLIES FOR PACKAGING ELECTRONIC DEVICES AND FOR COUPLING OPTICAL FIBERS TO THE PACKAGED DEVICES              |
| RO2817   | CIRCULAR GRATING LASERS  | US   | 08/158,543  | 5,448,581  |            |                              | CIRCULAR GRATING LASERS  |
| RO2875   | CHIRP CONTROL OF A MACH ZEHNDER OPTICAL MODULATOR USING NON EQUAL POWER SPLITTING  | US   | 08/450,841  | 5,524,076  |            |                              | CHIRP CONTROL OF A MACH ZEHNDER OPTICAL MODULATOR USING NON EQUAL POWER SPLITTING  |
| RO2879   | SEMICONDUCTOR LASER STRUCTURE FOR IMPROVED STABILITY OF THE THRESHOLD CURRENT WITH RESPECT TO CHANGES IN AMBIENT TEMPERATURE | US   | 08/242,653  | 5,483,547  |            |                              | SEMICONDUCTOR LASER STRUCTURE FOR IMPROVED STABILITY OF THE THRESHOLD CURRENT WITH RESPECT TO CHANGES IN AMBIENT TEMPERATURE |
| RO2956   | SEMICONDUCTOR MODULATOR WITH A 2-2 SHIFT   | GB   | 9513146.2   | 2 302 738  |            |                              | SEMICONDUCTOR MODULATOR WITH A 2-2 SHIFT   |
| RO2956   | SEMICONDUCTOR MODULATOR WITH A 2-2 SHIFT   | JP   | 8-188293    |            |            |                              | SEMICONDUCTOR MODULATOR WITH A 2-2 SHIFT   |
| RO2956   | SEMICONDUCTOR MODULATOR WITH A 2-2 SHIFT   | CA   | 2,176,099   | 2,176,099  |            |                              | SEMICONDUCTOR MODULATOR WITH A SHIFT   |

| Disc No | Disclosure Title  | Ctry | Serial No  | Patent No | Sub Status | App Inventor with Depr No's | Application title   |
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| RO2956  | SEMICONDUCTOR MODULATOR WITH A 2-2 SHIFT  | US   | 08/612,555 | 5,694,504 |            |                             | SEMICONDUCTOR MODULATOR WITH A 2-2 SHIFT  |
| RO2969  | METHOD OF ETCHING PATTERNS IN III-V MATERIAL WITH ACCURATE DEPTH CONTROL                          | US   | 08/450,839 | 5,567,659 |            |                             | METHOD OF ETCHING PATTERNS IN III-V MATERIAL WITH ACCURATE DEPTH CONTROL                          |
| RO2974  | MULTI WAVELENGTH GAIN COUPLED DISTRIBUTED FEEDBACK LASER ARRAY WITH FINE TUNABILITY               | US   | 08/413,555 | 5,536,085 |            |                             | MULTI WAVELENGTH GAIN COUPLED DISTRIBUTED FEEDBACK LASER ARRAY WITH FINE TUNABILITY               |
| RO2999  | COUPLING OF STRONGLY AND WEAKLY GUIDING WAVEGUIDES FOR COMPACT INTEGRATED MACH ZEHNDER MODULATORS | CA   | 2,209,455  |           |            |                             | COUPLING OF STRONGLY AND WEAKLY GUIDING WAVEGUIDES FOR COMPACT INTEGRATED MACH ZEHNDER MODULATORS |
| RO2999  | COUPLING OF STRONGLY AND WEAKLY GUIDING WAVEGUIDES FOR COMPACT INTEGRATED MACH ZEHNDER MODULATORS | EP   | 97304743.4 |           |            |                             | COUPLING OF STRONGLY AND WEAKLY GUIDING WAVEGUIDES FOR COMPACT INTEGRATED MACH ZEHNDER MODULATORS |
| RO2999  | COUPLING OF STRONGLY AND WEAKLY GUIDING WAVEGUIDES FOR COMPACT INTEGRATED MACH ZEHNDER MODULATORS | JP   | 9-174942   |           |            |                             | COUPLING OF STRONGLY AND WEAKLY GUIDING WAVEGUIDES FOR COMPACT INTEGRATED MACH ZEHNDER MODULATORS |
| RO2999  | COUPLING OF STRONGLY AND WEAKLY GUIDING WAVEGUIDES FOR COMPACT INTEGRATED MACH ZEHNDER MODULATORS | US   | 08/675,757 | 5,799,119 |            |                             | COUPLING OF STRONGLY AND WEAKLY GUIDING WAVEGUIDES FOR COMPACT INTEGRATED MACH ZEHNDER MODULATORS |
| RO3007  | BURIED HETEROSTRUCTURE LASER WITH QUATERNARY CURRENT BLOCKING LAYER                               | US   | 08/728,991 | 6,028,875 |            |                             | BURIED HETEROSTRUCTURE LASER WITH QUATERNARY CURRENT BLOCKING LAYER                               |
| RO3015  | THIN FILM RESISTOR FOR OPTOELECTRONIC INTEGRATED CIRCUITS   | GB   | 9700985.6  | 2 309 335 |            |                             | THIN FILM RESISTOR FOR OPTOELECTRONIC INTEGRATED CIRCUITS   |
| RO3015  | THIN FILM RESISTOR FOR OPTOELECTRONIC INTEGRATED CIRCUITS   | JP   | 9-009795   |           |            |                             | THIN FILM RESISTOR FOR OPTOELECTRONIC INTEGRATED CIRCUITS   |
| RO3015  | THIN FILM RESISTOR FOR OPTOELECTRONIC INTEGRATED CIRCUITS   | US   | 08/977,371 | 5,960,014 |            |                             | THIN FILM RESISTOR FOR OPTOELECTRONIC INTEGRATED CIRCUITS   |
| RO3066  | LASER DIODE AND METHOD OF FABRICATION THEREOF   | US   | 09/093,399 | 6,151,347 |            |                             | LASER DIODE AND METHOD OF FABRICATION THEREOF   |

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| RO3090   | CONFIGURABLE CHIRP MACH-ZEHNDER OPTICAL MODULATOR   | CA   | 2,220,240  | 2,220,240    |                   |                              | CONFIGURABLE CHIRP MACH-ZEHNDER OPTICAL MODULATOR   |
| RO3090   | CONFIGURABLE CHIRP MACH-ZEHNDER OPTICAL MODULATOR   | EP   | 97308615.0 |              |                   |                              | CONFIGURABLE CHIRP MACH-ZEHNDER OPTICAL MODULATOR   |
| RO3090   | CONFIGURABLE CHIRP MACH-ZEHNDER OPTICAL MODULATOR   | US   | 08/745,168 | 5,778,113    |                   |                              | CONFIGURABLE CHIRP MACH-ZEHNDER OPTICAL MODULATOR   |
| RO3090   | CONFIGURABLE CHIRP MACH-ZEHNDER OPTICAL MODULATOR   | US   | 09/057,602 | 5,991,471    |                   |                              | CONFIGURABLE CHIRP MACH-ZEHNDER OPTICAL MODULATOR   |
| RO3092   | POLARIZATION INSENSITIVE MULTILAYER PLANAR REFLECTION FILTERS WITH NEAR IDEAL SPECTRAL RESPONSE | US   | 08/686,355 | 5,777,793    |                   |                              | POLARIZATION INSENSITIVE MULTILAYER PLANAR REFLECTION FILTERS WITH NEAR IDEAL SPECTRAL RESPONSE |
| RO3139   | WAVELENGTH MONITORING AND CONTROL ASSEMBLY FOR WDM OPTICAL TRANSMISSION SYSTEMS                 | CA   | 2,209,558  |              |                   |                              | WAVELENGTH MONITORING AND CONTROL ASSEMBLY FOR WDM OPTICAL TRANSMISSION SYSTEMS                 |
| RO3139   | WAVELENGTH MONITORING AND CONTROL ASSEMBLY FOR WDM OPTICAL TRANSMISSION SYSTEMS                 | EP   | 97111630.6 | 0 818 859    | Nat'l Phase Filed |                              | WAVELENGTH MONITORING AND CONTROL ASSEMBLY FOR WDM OPTICAL TRANSMISSION SYSTEMS                 |
| RO3139   | WAVELENGTH MONITORING AND CONTROL ASSEMBLY FOR WDM OPTICAL TRANSMISSION SYSTEMS                 | US   | 08/680,284 | 5,825,792    |                   |                              | WAVELENGTH MONITORING AND CONTROL ASSEMBLY FOR WDM OPTICAL TRANSMISSION SYSTEMS                 |
| RO3139   | WAVELENGTH MONITORING AND CONTROL ASSEMBLY FOR WDM OPTICAL TRANSMISSION SYSTEMS                 | JP   | 9-186204   |              |                   |                              | WAVELENGTH MONITORING AND CONTROL ASSEMBLY FOR WDM OPTICAL TRANSMISSION SYSTEMS                 |
| RO3139   | WAVELENGTH MONITORING AND CONTROL ASSEMBLY FOR WDM OPTICAL TRANSMISSION SYSTEMS                 | GB   | 97111630.6 | 0 818 859    |                   |                              | WAVELENGTH MONITORING AND CONTROL ASSEMBLY FOR WDM OPTICAL TRANSMISSION SYSTEMS                 |
| RO3139   | WAVELENGTH MONITORING AND CONTROL ASSEMBLY FOR WDM OPTICAL TRANSMISSION SYSTEMS                 | DE   | 97111630.6 | 697 11 126.1 |                   |                              | WAVELENGTH MONITORING AND CONTROL ASSEMBLY FOR WDM OPTICAL TRANSMISSION SYSTEMS                 |
| RO3139   | WAVELENGTH MONITORING AND CONTROL ASSEMBLY FOR WDM OPTICAL TRANSMISSION SYSTEMS                 | FR   | 97111630.6 | 0 818 859    |                   |                              | WAVELENGTH MONITORING AND CONTROL ASSEMBLY FOR WDM OPTICAL TRANSMISSION SYSTEMS                 |



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| RO3478   | TWO SECTION COMPLEX COUPLED DISTRIBUTED FEEDBACK SEMICONDUCTOR LASER WITH ENHANCED WAVELENGTH TUNING RANGE | EP | 98307439.4     |            |            |                              | TWO SECTION COMPLEX COUPLED DISTRIBUTED FEEDBACK SEMICONDUCTOR LASER WITH ENHANCED WAVELENGTH TUNING RANGE |
| RO3478   | TWO SECTION COMPLEX COUPLED DISTRIBUTED FEEDBACK SEMICONDUCTOR LASER WITH ENHANCED WAVELENGTH TUNING RANGE | JP | 10-264323      |            |            |                              | TWO SECTION COMPLEX COUPLED DISTRIBUTED FEEDBACK SEMICONDUCTOR LASER WITH ENHANCED WAVELENGTH TUNING RANGE |
| RO3478   | TWO SECTION COMPLEX COUPLED DISTRIBUTED FEEDBACK SEMICONDUCTOR LASER WITH ENHANCED WAVELENGTH TUNING RANGE | US | 08/933,529     | 5,936,994  |            |                              | TWO SECTION COMPLEX COUPLED DISTRIBUTED FEEDBACK SEMICONDUCTOR LASER WITH ENHANCED WAVELENGTH TUNING RANGE |
| RO3479   | DISTRIBUTED FEEDBACK SEMICONDUCTOR LASER WITH GAIN MODULATION  | US | 08/953,015     | 6,026,110  |            |                              | DISTRIBUTED FEEDBACK SEMICONDUCTOR LASER WITH GAIN MODULATION  |
| RO3610   | SERIES OF STRONGLY COMPLEX COUPLED DFB LASERS  | EP | 98310111.4     |            |            |                              | SERIES OF STRONGLY COMPLEX COUPLED DFB LASERS  |
| RO3610   | SERIES OF STRONGLY COMPLEX COUPLED DFB LASERS  | JP | 10-366380      |            |            |                              | SERIES OF STRONGLY COMPLEX COUPLED DFB LASERS  |
| RO3610   | SERIES OF STRONGLY COMPLEX COUPLED DFB LASERS  | US | 08/998,071     | 6,104,739  |            |                              | SERIES OF STRONGLY COMPLEX COUPLED DFB LASERS  |
| RO3746   | ETCHING OF INDIUM PHOSPHIDE MATERIALS FOR MICROELECTRONICS FABRICATION                                     | US | 08/994,453     | 5,869,398  |            |                              | ETCHING OF INDIUM PHOSPHIDE MATERIALS FOR MICROELECTRONICS FABRICATION                                     |
| RO3920   | HIGH ORDER GAIN COUPLED DFB LASERS   | WO | PCT/CA99/01067 |            |            |                              | A GAIN COUPLED DISTRIBUTED FEEDBACK SEMICONDUCTOR LASER  |
| RO3920   | HIGH ORDER GAIN COUPLED DFB LASERS   | CA | 2,310,604      |            |            |                              | A GAIN COUPLED DISTRIBUTED FEEDBACK SEMICONDUCTOR LASER  |
| RO3920   | HIGH ORDER GAIN COUPLED DFB LASERS   | EP | 99973441.1     |            |            |                              | A GAIN COUPLED DISTRIBUTED FEEDBACK SEMICONDUCTOR LASER  |
| RO3920   | HIGH ORDER GAIN COUPLED DFB LASERS   | JP | 2000-588867    |            |            |                              | A GAIN COUPLED DISTRIBUTED FEEDBACK SEMICONDUCTOR LASER  |

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| RO4144   | COMPACT PROGRAMMABLE MATRIX OF STRONGLY COMPLEX COUPLED DFB LASERS FOR WIDE AND CONTINUOUS SINGLE WAVELENGTH          | US   | 09/209,860     | 6,201,824  |                   |                             | STRONGLY COMPLEX COUPLED DFB LASERS SERIES                                   |
| RO4324   | CONTINUOUSLY TUNABLE HIGH REPETITION RATE SHORT PULSE GENERATION USING DUAL MODE HIGHLY GAIN-COUPLED DFB LASER DIODES | US   | 09/213,088     |            |                   |                             | GENERATION OF SHORT OPTICAL PULSES USING STRONGLY COMPLEX COUPLED DFB LASERS |
| RO4416   | VARIABLE OPTICAL ATTENUATOR   | US   | 09/388,628     | 6,246,826  |                   |                             | VARIABLE OPTICAL ATTENUATOR WITH PROFILED BLADE                              |
| RO4504   | ACTIVE REFLECTION MODULATOR   | US   | 09/409,036     |            |                   |                             | COMPOUND CAVITY REFLECTION MODULATION LASER SYSTEM                           |
| RO4504   | ACTIVE REFLECTION MODULATOR   | WO   | PCT/CA00/00856 |            | Nat'l Phase Filed |                             | COMPOUND CAVITY REFLECTION MODULATION LASER SYSTEM                           |
| RO4504   | ACTIVE REFLECTION MODULATOR   | CA   | 2,351,381      |            |                   |                             | COMPOUND CAVITY REFLECTION MODULATION LASER SYSTEM                           |
| RO4504   | ACTIVE REFLECTION MODULATOR   | EP   | 947728.2       |            |                   |                             | COMPOUND CAVITY REFLECTION MODULATION LASER SYSTEM                           |
| RO4504   | ACTIVE REFLECTION MODULATOR   | JP   | 2001-527411    |            |                   |                             | COMPOUND CAVITY REFLECTION MODULATION LASER SYSTEM                           |

| Disc No. | Disclosure Title                                | Ctry | Serial No.     | Patent No. | Sub Status | Application Title   |
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| 10163ID  | SLOTTED MONOLITHIC OPTICAL WAVEGUIDES           | CA   | 2,311,961      |            |            | SLOTTED MONOLITHIC OPTICAL WAVEGUIDES   |
| 10163ID  | SLOTTED MONOLITHIC OPTICAL WAVEGUIDES           | EP   | 304657         |            |            | PHASE ADJUSTER USING SLOTTED, CONCATENATED WAVEGUIDES AND THERMO-OPTIC OR ELECTRO-OPTIC INSERTS |
| 10163ID  | SLOTTED MONOLITHIC OPTICAL WAVEGUIDES           | US   | 09/346,320     | 6,424,755  |            | SLOTTED MONOLITHIC OPTICAL WAVEGUIDES   |
| 11550RO  | HYBRID ATTACH MIRRORS FOR A MEMS OPTICAL SWITCH | CA   | 2,355,450      |            |            | HYBRID ATTACH MIRRORS FOR A MEMS OPTICAL SWITCH   |
| 11550RO  | HYBRID ATTACH MIRRORS FOR A MEMS OPTICAL SWITCH | US   | 09/672,703     |            |            | HYBRID ATTACH MIRRORS FOR A MEMS OPTICAL SWITCH   |
| 12801AU  | FIBRE OPTIC CIRCULATOR                          | EP   | 96940631.3     |            |            | FIBRE OPTIC CIRCULATOR  |
| 12801AU  | FIBRE OPTIC CIRCULATOR                          | US   | 08/942,601     | 6,014,475  |            | FIBRE OPTIC CIRCULATOR  |
| 12802AU  | OPTICAL FILTERING METHOD AND DEVICE             | CA   | 2,318,674      |            |            | OPTICAL FILTERING METHOD AND DEVICE   |
| 12802AU  | OPTICAL FILTERING METHOD AND DEVICE             | US   | 09/660,147     | 6,466,704  |            | OPTICAL FILTERING METHOD AND DEVICE   |
| 12802AU  | OPTICAL FILTERING METHOD AND DEVICE             | WO   | PCT/AU00/00735 |            |            | OPTICAL FILTERING METHOD AND DEVICE   |
| 12803AU  | REFLECTIVE NON RECIPROCAL OPTICAL DEVICE        | CA   | 2,313,311      |            |            | REFLECTIVE NON RECIPROCAL OPTICAL DEVICE  |
| 12803AU  | REFLECTIVE NON RECIPROCAL OPTICAL DEVICE        | EP   | 202289.5       |            |            | REFLECTIVE NON RECIPROCAL OPTICAL DEVICE  |

| Disc No | Disc Title   | Cl | Serial No      | Patent No    | Sub Status        | Application Title                                      |
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| 12803AU | REFLECTIVE NON RECIPROCAL OPTICAL DEVICE               | US | 09/345,027     | 6,263,131    |                   | REFLECTIVE NON-RECIPROCAL OPTICAL DEVICE               |
| 12803AU | REFLECTIVE NON RECIPROCAL OPTICAL DEVICE               | US | 09/610,601     | 6,415,077    |                   | REFLECTIVE NON-RECIPROCAL OPTICAL DEVICE               |
| 12804AU | WAVELENGTH DEPENDENT ISOLATOR                          | CA | 10/129828      |              | Nat'l Phase Filed | WAVELENGTH DEPENDENT ISOLATOR                          |
| 12804AU | WAVELENGTH DEPENDENT ISOLATOR                          | US | PCT/AU00/01380 |              | Nat'l Phase Filed | WAVELENGTH DEPENDENT ISOLATOR                          |
| 12804AU | WAVELENGTH DEPENDENT ISOLATOR                          | WO | PCT/AU00/01380 |              | Nat'l Phase Filed | WAVELENGTH DEPENDENT ISOLATOR                          |
| 13240AU | POLARISATION SPLITTING CIRCULATOR METHOD AND DEVICE    | US | 09/736,095     |              |                   | POLARISATION SPLITTING CIRCULATOR METHOD AND DEVICE    |
| 14081ID | FIBRE OPTICAL COMPONENT                                | US | 09/888,888     |              |                   | FIBRE OPTICAL COMPONENT                                |
| 14669AU | VARIABLE ATTENUATION AND SPECTRAL SLOPE OPTICAL DEVICE | US | 10/218,267     |              |                   | VARIABLE ATTENUATION AND SPECTRAL SLOPE OPTICAL DEVICE |
| 15087ID | AN OPTICAL GRATING DEVICE                              | US | 10/109,916     |              |                   | AN OPTICAL GRATING DEVICE                              |
| ID0190  | WAVELENGTH RESONANT FUSED FIBRE COUPLER                | DE | 95308065.2     | 695 27 251.9 |                   | WAVELENGTH RESONANT FUSED FIBRE COUPLER                |
| ID0190  | WAVELENGTH RESONANT FUSED FIBRE COUPLER                | EP | 95308065.2     | 0 713 109    | Nat'l Phase Filed | WAVELENGTH RESONANT FUSED FIBRE COUPLER                |
| ID0190  | WAVELENGTH RESONANT FUSED FIBRE COUPLER                | FR | 95308065.2     | 0 713 109    |                   | WAVELENGTH RESONANT FUSED FIBRE COUPLER                |
| ID0190  | WAVELENGTH RESONANT FUSED FIBRE COUPLER                | GB | 9521916.8      | 2 295 245    |                   | WAVELENGTH RESONANT FUSED FIBRE COUPLER                |
| ID0190  | WAVELENGTH RESONANT FUSED FIBRE COUPLER                | JP | 293047/1995    |              |                   | WAVELENGTH RESONANT FUSED FIBRE COUPLER                |
| ID0190  | WAVELENGTH RESONANT FUSED FIBRE COUPLER                | US | 08/557,857     | 5,703,976    |                   | WAVELENGTH RESONANT FUSED FIBRE COUPLER                |
| ID0226  | OPTICAL WAVEGUIDE GRATINGS                             | GB | 9318670.8      | 2 281 787    |                   | OPTICAL WAVEGUIDE GRATINGS                             |
| ID0291  | OPTICAL WAVEGUIDE GRATING FILTER                       | DE | 95308201.3     | 695 25 223.2 |                   | OPTICAL WAVEGUIDE GRATING FILTER                       |
| ID0291  | OPTICAL WAVEGUIDE GRATING FILTER                       | EP | 95308201.3     | 0 713 110    | Nat'l Phase Filed | OPTICAL WAVEGUIDE GRATING FILTER                       |
| ID0291  | OPTICAL WAVEGUIDE GRATING FILTER                       | FR | 95308201.3     | 0 713 110    |                   | OPTICAL WAVEGUIDE GRATING FILTER                       |
| ID0291  | OPTICAL WAVEGUIDE GRATING FILTER                       | GB | 9523489.4      | 2 295 247    |                   | OPTICAL WAVEGUIDE GRATING FILTER                       |
| ID0291  | OPTICAL WAVEGUIDE GRATING FILTER                       | US | 08/558,709     | 5,638,473    |                   | OPTICAL WAVEGUIDE GRATING FILTER                       |
| ID0309  | BRAGG GRATINGS IN WAVEGUIDES                           | US | 08/647,795     | 5,730,888    |                   | BRAGG GRATINGS IN WAVEGUIDES                           |
| ID0355  | ALL-FIBRE OPTICAL FILTER                               | DE | 96302352.8     | 696 22 778.9 |                   | OPTICAL NOTCH FILTER MANUFACTURE                       |
| ID0355  | ALL-FIBRE OPTICAL FILTER                               | EP | 96302352.8     | 0 736 784    | Nat'l Phase Filed | OPTICAL NOTCH FILTER MANUFACTURE                       |

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| ID0355   | ALL-FIBRE OPTICAL FILTER             | FR | 96302352.8     | 0 736 784    |                   | OPTICAL NOTCH FILTER MANUFACTURE                      |
| ID0355   | ALL-FIBRE OPTICAL FILTER             | GB | 96302352.8     | 0 736 784    |                   | OPTICAL NOTCH FILTER MANUFACTURE                      |
| ID0355   | ALL-FIBRE OPTICAL FILTER             | US | 08/628,579     | 5,708,740    |                   | ALL-FIBRE OPTICAL FILTER                              |
| ID0421   | PLANAR WAVEGUIDES                    | US | 08/842,021     | 5,904,491    |                   | PLANAR WAVEGUIDES                                     |
| ID0423   | PLANAR WAVEGUIDE CLADDING            | US | 08/842,022     | 5,885,881    |                   | PLANAR WAVEGUIDE CLADDING                             |
| ID0444   | WAVEGUIDES TO PHOTODETECTOR ASSEMBLY | CA | 2,241,189      |              |                   | WAVEGUIDES TO PHOTODETECTOR ASSEMBLY                  |
| ID0444   | WAVEGUIDES TO PHOTODETECTOR ASSEMBLY | DE | 97906822.8     | 697 09 330.1 |                   | WAVEGUIDES TO PHOTODETECTOR ASSEMBLY                  |
| ID0444   | WAVEGUIDES TO PHOTODETECTOR ASSEMBLY | EP | 97906822.8     | 0 891 570    | Nat'l Phase Filed | WAVEGUIDES TO PHOTODETECTOR ASSEMBLY                  |
| ID0444   | WAVEGUIDES TO PHOTODETECTOR ASSEMBLY | FR | 97906822.8     | 0 891 570    |                   | WAVEGUIDES TO PHOTODETECTOR ASSEMBLY                  |
| ID0444   | WAVEGUIDES TO PHOTODETECTOR ASSEMBLY | GB | 9605320.2      | 2 311 145    |                   | WAVEGUIDES TO PHOTODETECTOR ASSEMBLY                  |
| ID0444   | WAVEGUIDES TO PHOTODETECTOR ASSEMBLY | GB | 97906822.8     | 0 891 570    |                   | WAVEGUIDES TO PHOTODETECTOR ASSEMBLY                  |
| ID0444   | WAVEGUIDES TO PHOTODETECTOR ASSEMBLY | IT | 97906822.8     | 0 891 570    |                   | WAVEGUIDES TO PHOTODETECTOR ASSEMBLY                  |
| ID0444   | WAVEGUIDES TO PHOTODETECTOR ASSEMBLY | JP | 532348/1997    |              |                   | WAVEGUIDES TO PHOTODETECTOR ASSEMBLY                  |
| ID0444   | WAVEGUIDES TO PHOTODETECTOR ASSEMBLY | US | 09/101,276     |              |                   | WAVEGUIDES TO PHOTODETECTOR ASSEMBLY                  |
| ID0444   | WAVEGUIDES TO PHOTODETECTOR ASSEMBLY | WO | PCT/GB97/00606 |              | Nat'l Phase Filed | WAVEGUIDES TO PHOTODETECTOR ASSEMBLY                  |
| ID0449   | WAVEGUIDE PAIR WITH CLADDING         | CA | 2,239,118      |              |                   | WAVEGUIDE PAIR WITH CLADDING                          |
| ID0449   | WAVEGUIDE PAIR WITH CLADDING         | DE | 97900292       | 697 02 299.4 | Nat'l Phase Filed | METHOD OF PRODUCING A CLADDED WAVEGUIDE PAIR ASSEMBLY |
| ID0449   | WAVEGUIDE PAIR WITH CLADDING         | EP | 97900292       | 0 873 531    | Nat'l Phase Filed | METHOD OF PRODUCING A CLADDED WAVEGUIDE PAIR ASSEMBLY |
| ID0449   | WAVEGUIDE PAIR WITH CLADDING         | FR | 97900292       | 0 873 531    | Nat'l Phase Filed | METHOD OF PRODUCING A CLADDED WAVEGUIDE PAIR ASSEMBLY |
| ID0449   | WAVEGUIDE PAIR WITH CLADDING         | GB | 97900292       | 0 873 531    | Nat'l Phase Filed | METHOD OF PRODUCING A CLADDED WAVEGUIDE PAIR ASSEMBLY |

| Disc No. | Disclosure Title  | Cl. | Serial No.     | Patent No.   | Sub-Status        | Application Title   |
|----------|---|-----|----------------|--------------|-------------------|---|
| ID0449   | WAVEGUIDE PAIR WITH CLADDING  | IT  | 97900292       | 0 873 531    | Nat'l Phase Filed | METHOD OF PRODUCING A CLADDED WAVEGUIDE PAIR ASSEMBLY   |
| ID0449   | WAVEGUIDE PAIR WITH CLADDING  | JP  | 524974/1997    |              |                   | WAVEGUIDE PAIR WITH CLADDING  |
| ID0449   | WAVEGUIDE PAIR WITH CLADDING  | US  | 09/091,257     | 6,044,192    |                   | WAVEGUIDE PAIR WITH CLADDING  |
| ID0449   | WAVEGUIDE PAIR WITH CLADDING  | WO  | PCT/GB97/00040 |              | Nat'l Phase Filed | WAVEGUIDE PAIR WITH CLADDING  |
| ID0509   | MANUFACTURE OF PLANAR WAVEGUIDE COMPONENTS WITH DISPERSIVE ELEMENTS AND FINE LOCAL REF. INDEXCON. | CA  | 2,211,244      |              |                   | OPTICAL WAVEGUIDE BRAGG REFLECTION GRATINGS   |
| ID0509   | MANUFACTURE OF PLANAR WAVEGUIDE COMPONENTS WITH DISPERSIVE ELEMENTS AND FINE LOCAL REF. INDEXCON. | GB  | 9715185.6      | 2 316 185    |                   | MANUFACTURE OF PLANAR WAVEGUIDE COMPONENTS WITH DISPERSIVE ELEMENTS AND FINE LOCAL REF. INDEXCON. |
| ID0509   | MANUFACTURE OF PLANAR WAVEGUIDE COMPONENTS WITH DISPERSIVE ELEMENTS AND FINE LOCAL REF. INDEXCON. | JP  | 209343/97      |              |                   | MANUFACTURE OF PLANAR WAVEGUIDE COMPONENTS WITH DISPERSIVE ELEMENTS AND FINE LOCAL REF. INDEXCON. |
| ID0509   | MANUFACTURE OF PLANAR WAVEGUIDE COMPONENTS WITH DISPERSIVE ELEMENTS AND FINE LOCAL REF. INDEXCON. | US  | 08/896,092     | 6,115,518    |                   | OPTICAL WAVEGUIDE BRAGG REFLECTION GRATINGS   |
| ID0997   | SERIAL FILTERING FOR WAVELENGTH FLATTENING OF E.D.F.A.  | CA  | 2,282,939      |              |                   | OPTICAL EQUALIZER   |
| ID0997   | SERIAL FILTERING FOR WAVELENGTH FLATTENING OF E.D.F.A.  | DE  | 99306728.9     | 699 01 419.0 |                   | OPTICAL GAIN EQUALIZER  |
| ID0997   | SERIAL FILTERING FOR WAVELENGTH FLATTENING OF E.D.F.A.  | EP  | 99306728.9     | 1 009 078    | Nat'l Phase Filed | OPTICAL GAIN EQUALIZER  |
| ID0997   | SERIAL FILTERING FOR WAVELENGTH FLATTENING OF E.D.F.A.  | FR  | 99306728.9     | 1 009 078    |                   | OPTICAL GAIN EQUALIZER  |
| ID0997   | SERIAL FILTERING FOR WAVELENGTH FLATTENING OF E.D.F.A.  | GB  | 99306728.9     | 1 009 078    |                   | OPTICAL GAIN EQUALIZER  |
| ID0997   | SERIAL FILTERING FOR WAVELENGTH FLATTENING OF E.D.F.A.  | IT  | 99306728.9     | 1 009 078    |                   | OPTICAL GAIN EQUALIZER  |
| ID0997   | SERIAL FILTERING FOR WAVELENGTH FLATTENING OF E.D.F.A.  | US  | 09/209,387     | 6,321,000    |                   | OPTICAL EQUALIZER   |
| ID8550   | OPTICAL FIBRES  | GB  | 8230675        | 2 129 152    |                   | OPTICAL FIBRES  |

| Disc No. | Disclosure Title   | Cy | Serial No.  | Patent No.  | Sub Status | Application Title  |
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| ID9170   | BEAM SPLITTER/COMBERS  | CA | 500,513     | 1,288,267   |            | BEAM SPLITTER/COMBERS  |
| ID9170   | BEAM SPLITTER/COMBERS  | GB | 8503506     | 2 170 920   |            | BEAM SPLITTER/COMBERS  |
| ID9170   | BEAM SPLITTER/COMBERS  | US | 06/819,125  | 4,756,589   |            | BEAM SPLITTER/COMBERS  |
| ID9441   | DIRECTIONAL COUPLER  | DE | 378 25 37.2 | 378 25 37.2 |            | DIRECTIONAL COUPLER  |
| ID9441   | DIRECTIONAL COUPLER  | FR | 87302418.6  | 0 246 737   |            | DIRECTIONAL COUPLER  |
| ID9441   | DIRECTIONAL COUPLER  | GB | 8612660     | 2 190 762   |            | DIRECTIONAL COUPLER  |
| ID9441   | DIRECTIONAL COUPLER  | JP | 118687/87   | 2022576     |            | DIRECTIONAL COUPLER  |
| ID9441   | DIRECTIONAL COUPLER  | US | 07/032,783  | 4,801,185   |            | DIRECTIONAL COUPLER  |
| ID9579   | GLASS CLAD OPTICAL FIBRE DIRECTIONAL COUPLERS  | GB | 8716382     | 2 207 254   |            | GLASS CLAD OPTICAL FIBRE DIRECTIONAL COUPLERS  |
| ID9730   | DOPED ELEMENTS   | GB | 8820848.3   | 2 222 400   |            | DOPED ELEMENTS   |
| ID9758   | "OPTICAL WAVEGUIDE TAPER HAVING CORE, INTERLAYER AND CLADDING"                         | GB | 8926061.6   | 2 238 396   |            | "OPTICAL WAVEGUIDE TAPER HAVING CORE, INTERLAYER AND CLADDING"                         |
| RO2922   | POLARIZATION INDEPENDENT WAVELENGTH TUNABLE FILTER BASED ON BIREFRINGENCE COMPENSATION | US | 08/329,923  | 5,488,679   |            | POLARIZATION INDEPENDENT WAVELENGTH TUNABLE FILTER BASED ON BIREFRINGENCE COMPENSATION |